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# MIND

## A QUARTERLY REVIEW

OF

## PSYCHOLOGY AND PHILOSOPHY.

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THE ABERDEEN UNIVERSITY PRESS.

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# MIND

## A QUARTERLY REVIEW

OF

## PSYCHOLOGY AND PHILOSOPHY.

EDITED BY

G. F. STOUT,

WITH THE CO-OPERATION OF PROFESSOR H. SIDGWICK, DR. E. CAIRD, DR. VENN, PROFESSOR WARD, AND PROFESSOR TITCHENER.

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# MIND

## A QUARTERLY REVIEW

OF

## PSYCHOLOGY AND PHILOSOPHY.

## I.—HEGEL'S THEORY OF THE POLITICAL ORGANISM.[1]

BY BERNARD BOSANQUET.

A TENDENCY has recently asserted itself in the criticism of Hegel's Philosophy for which Idealists should be thankful. To suspend judgment on his Metaphysic, while quarrying abundantly from his studies of life, was a common attitude, which displayed little intellectual courage. And if we are now called upon to reverse this position, to grapple with and to appropriate the method and general conclusions of the Metaphysic, while rejecting the studies of life as hardly scientific philosophy, we have probably much to learn from such a contention.

The conception of Society as an organism has of late been very ably treated from this newer point of view by Mr. McTaggart in the July number of the *International Journal of Ethics*. His conclusions may be summarised in the following propositions:—

1. If we mean anything by calling Society an organism, we mean that it is the end of the Individuals composing it [and not merely that they are greatly affected by the fact of belonging to it].

2. There is nothing in Hegel's Metaphysic which entitles us to assume [supposing that we accept this Metaphysic on the whole] that our Society is or ought to be an end for its individual members.

3. It may almost be maintained that for any one who understands Hegel rightly, Society cannot be such an end.

[1] The Presidential Address to the Aristotelian Society, 1st Nov., 1897.



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4. Philosophy can afford no guidance as to the right direction of the next step in social reform at any given moment; *viz.*, whether it should be to intensify or to diminish the intimacy of the social union.

Without interfering in the immediate controversy which Mr. McTaggart has in hand, I may fairly attempt to restate Hegel's position as it appears to me, and to explain what sort of conclusions I should draw with regard to the above propositions. It is plain how they concern the general relation of Hegel's Logic or Metaphysic to what Mr. McTaggart has called its applications—what I have called above his studies of life. Hegel's Social or Political Philosophy is a principal part of his Philosophy of Mind. To reject this latter, while accepting the Metaphysic, in other words the general argument of the Logic, is to reverse at least one half of the customary judgment of Idealists, and to pledge ourselves to a sharp demarcation between Metaphysic and the direct study of experience with regard to its grades of reality. On the subject of this demarcation I shall have but a few words to say this evening. I only desired to point out how the question before us is an epitome of the whole discussion. I do not conceal that my own hope and endeavour, as at present advised, is in the direction of maintaining the Logic and not abandoning its applications. Considering indeed what Hegel has told us of the relation of historical actuality to the logical notion,[1] I do not at all hold that in mere historical object-matter a false application of the Logic, or an application of it to fictitious existence, is inconceivable. But I must urge that to have wholly failed in establishing true grades of reality or steps toward the absolute, in a department of experience which includes the central development of Mind as such, and which he has worked over with care from beginning to end, would seem to be of very bad augury for his central principle.

1. First, then, let us look at Hegel's position as regards the general nature of an organism as such, and the particular nature of the political and social organism, in view of the proposition that we gain nothing by calling society an organism unless we are prepared to assert that it is the end of the individuals composing it.

*a.* The first thing that strikes us in Hegel's doctrine of the organism is that the character of being an organism is a matter of degree. The solar system, a typical example of

[1] *E.g.*, *Natur-Ph.*, p. 12.

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the category of absolute mechanism, is the "first organism," though this means that the term applies to it in a strained sense. It is, we are told, "the organism of mechanism".[1] The totality of physical nature on our globe is also called an organism,[2] and so of course are the vegetable and the animal individual, although in different senses.

*β*. If now we ask what is in Hegel's view the characteristic by the degrees of which the grades of organism are distinguished, we find the same context of thought reiterated with notable persistence wherever the subject is entered upon. I extract some general statements, and one which deals with the State as such.[3]

"Such an object, which has in it the process within the simplicity of the notion, is Organic. It is this absolute fluidity, wherein the determination, by which it would be only for others, is dissolved. Whereas the inorganic thing has the determinateness for its essence, and therefore can make up the completeness of the moments of the notion only in conjunction with another thing, and so, when it enters upon movement is lost [as in chemical combination]; in the organic being, on the contrary, all determinations, by which it is open to [the influence of] other things, are tied together under the simple organic unity; none comes out as essential, so that it could freely relate itself to another; and the organic, therefore, in its relation, preserves itself by its own action. In short, the organic is a whole in itself, and contains all that most matters to it; and even in contact with other things it is really self-determined." Another citation[4] will show the point of this; "the chemical process, by the destruction of external form, is the transition to the higher sphere of the Organism, in which the infinite form realises itself as infinite form; that is, the infinite form is the notion, which here comes to reality. Here, therefore, Nature has attained the existence of the notion; the notion is no longer merely potential, no longer merged in a mode of persistence by which its parts are outside one another."

[1] *Natur-Philosophie*, p. 426. It is important to note that though distinctly called an organism, the solar system is in this passage denied to be an "organic existence". It is possible that the implied distinction throws light on the usage by which the State, though frequently spoken of as an organism, and this more especially as regards the political fabric proper, is not, or not prominently, spoken of as organic. In this connexion it is worth noting that the State is actually cited as an instance under the head of Absolute Mechanism (*Logic*, Sect. 199), which gives colour, no doubt, to Mr. McTaggart's suggestion on pp. 419-420 of the Journal.

[2] *Natur-Ph., ibid.* [3] *Phenomenology*, p. 186. [4] *Natur-Ph.*, p. 422.

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"Life[1] then, and nothing prior to it, is the true; it is higher than the stars and the sun, which is no doubt an individual, but is no subject. As the unity of the notion, and of the external aspect of the idea, in which the notion maintains itself, life is the Idea; and in this sense Spinoza too calls life the adequate notion, which is no doubt a purely abstract expression. Life is the union of opposites in general, not merely of the opposition of notion and reality. Life is where inner and outer, cause and effect, end and means, subjectivity and objectivity, and so on, are one and the same." "The[2] abstract idea of Organism is that the existence of the particularities, inasmuch as these are set down as passing moments of a single subject, is suitable to the unity of the notion," and then follows the passage distinguishing the solar system as the first or merely potential organism, on the ground that its parts have free independent existence. "Life,"[3] he continues, "has its other in itself, it is a rounded totality in itself, *i.e.* it is *self-end.*" Self-end comes in, I think, as a corollary, and as an adaptation from Kant, who is mentioned just below. Compare the way in which these conceptions are applied to the State, *e.g.* "the disposition[4] [*i.e.* that which takes the community as substantial *foundation and end* in ordinary life, see previous section] takes its particularly determined content from the different sides of the organism of the State. This organism is the development of the idea into its differences, and its objective reality. These different sides are the different powers and their occupations and activities, whereby the universal reproduces itself continually, and inasmuch as they are determined by the nature of the notion, in a necessary way; and being thus presupposed before its production, maintains itself; this organism is the political constitution. . . . It is the nature of the organism that if all parts do not pass over into identity, if one establishes itself as independent, all must perish. We get no farther in our judgment of the State by help of predicates, principles, etc., for it must be apprehended as organism; just as little as predicates seem to comprehend the nature of God, whose life I must rather perceive in itself." "The State[5] knows what it wills, and knows it in its universality, as something thought." The whole of this long section, treating of the characteristic difference of form between the State and religion, bears upon the general

[1] *Natur-Ph.*, p. 425. [2] *Ibid.*, 426. [3] *Ibid.*
[4] *Rts.-Phil.*, sect. 269 and lecture note. [5] *Ibid.*, 270.

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drift of our discussion. The State for Hegel is in short will and rationality made actual, systematic and explicit, though still touched with finiteness and externality.

Now the characteristic which is emphasised throughout these and other passages is the self-completeness, the circular movement, *αὐτάρκεια* of the organism, to use the term by which the Greek thinkers distinguish the more absolute existence of the community from the more relative existence of the individual. The organism may come under "great influence"[1] from what is without it, but its real determinations are within itself. It is essentially self-related, self-maintaining, and self-identical. This is a point noticeable in relation to the post-Darwinian discussion on the direction of variations, with its reaction against considering an organism as a collection of patent contrivances to meet external emergencies. In other words, the essence of an organism is to be adequate to the notion; for only the notion is ultimately a perfectly self-determining whole, or has perfect fluidity of moments, such that the moments or aspects are purely members and in no degree parts. The defect of the solar system, of the totality of nature, and of the vegetable individual, lies in the point that each of them has parts and not merely members. I do not pledge myself that Hegel is right as to plant-life; he is following the view of his time. But obviously with all externality this is, as Mr. McTaggart reminds us, in some degree the case, though the first appearance of the subject, the infinite form persisting through all transformations, in the self-feeling of animals, is a step which places animal life on a higher footing as regards adequacy to the notion than any form in which feeling is supposed absent.

It seems plain, therefore, that in estimating the organic rank of any complex, we cannot disregard the fluidity or ideality of the members as against the whole. The relation of "great influence" is one thing, and subsists between the organic and the inorganic.[2] Identity, or, so to speak, permeation, as of terms forming differences within a notion or universal, is another thing, and where it is or begins to be found indicates a correlative grade of organic character.

I conclude, therefore, so far, that the mode and degree in which Society permeates its members cannot be left out of account in estimating its organic character. The organ-

[1] *Phenom.*, p. 188. [2] *Ibid.*

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ism, in its idea, is the notion in existence. It is an inward process, a circular course, in which a whole maintains itself in a relatively perfect identity throughout differences which itself creates and does not accept from without.

γ. I have thus far intentionally omitted all but the most passing reference to the characteristic of finality. I have merely indicated the observation that though the "immanent end" is constantly near at hand in Hegel's account of the organism, it is rather strikingly absent from his explicit definition of it. Both in the *Phenomenologie*[1] and in the *Natur-Philosophie*[2] it appears rather as a corollary from the definition than as the definition itself, and always, as I venture to suggest, with a consciousness that the term "end," as adopted from Kant, is being driven beyond its powers when given the full import of the "self-end". Is not the same relation indicated by the treatment of End and Life in the Logic? In Life, as we saw above, the distinction of Ends and Means no longer applies.[3] "Selbst-Zweck" or "Self-End" is, I think, one of those modifications of a conception which indicate that it has reached its limit of strict applicability and can henceforward only be used on sufferance.

Bearing in mind the general nature of an organism, according to Hegel, and the precariousness of the conception of end as applied to it, we will now endeavour to understand in what sense the conception of a social organism involves the consequence that Society or determinate social relations should be the end of the individual citizen.

The term "end" is selective; while the term "self-end" —and there is no other combination in which "end" could be, on Hegelian lines, predicated of an organism—contradicts the idea of selection. But if "end" is to have any meaning, selection will force its way in. And so we tend to get a narrowed conception of organism, resulting from an arbitrary selection of the elements which are to count as "end". This is familiar in popular attempts to estimate the perfection of plants or animals. In judging, we select within the whole; not merely with a view to utility, which is confessedly abstract, but in appreciating beauty, or applying the ethical idea of waste, where our judgment is professedly catholic. Yet monstrosities in the former case, and arbitrary narrownesses in the latter, show how difficult it is to handle the conception of an immanent end. Hegel's "self-end," in the organism, is really, I think, always the

[1] P. 189. [2] P. 426. [3] *Natur-Ph.*, p. 425.

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notion, whether immediately existent in life, or more deeply embodied in the more explicit form of the State.[1]

What these considerations suggest to me here, is the extreme importance of the precise collocation of ideas which defines the "self-end" as identified with any organism. If we say "the flower is the self-end," we are selecting and excluding within the course of its plant-life; even if we say "the plant is a self-end," we probably mean the visible externality which we admire, and so once more give an unreal predominance to one factor of the whole, and that the spatial and self-external, the relatively inorganic factor.

To apply this to Society and social relations. If we say that in treating Society as an organism we bind ourselves to believe that Society or social relations are the end of their members, and then if we go on to take these members as individuals *qua* visible in their bodies, we have, I incline to believe, got leagues away from what Hegel thought, and, perhaps, from a rational view. The social or political organism as we name it and picture it signifies to us a certain plurality of human beings as opposed to the individual unit, or, at best, a congeries of relations envisaged by us on their external side as other groupings of pluralities of human beings. The wholes are then taken as such numbers and groupings, the parts as individual units indicated by their bodies; and we are supposed to have affirmed that an obligation, or imperative end, or duty, which does not arise when a several individual is considered, is somehow generated by the repetition of such individuals in a plurality; and also that a determinate plurality is an end in itself for A, as linking him with B and C, rather than with Y or Z.

But such a suggestion is analogous to treating the visible body as the "self-end" of an animal organism, or to treating enumeration of instances as the true exhibition of a universal principle. Now the State is for Hegel a body with a soul;[2] and the numbers and groupings of visible persons are only its body as imperfectly seen. The soul of the State is something different; it is the self-conscious will that has actualised and harmonised itself; or in other words, the world of freedom, "the free will that wills the free will".[3] If we must apply the conception of an end,

[1] It might be retorted here at once: "Then 'habemus confitentem' —the end *is* always away and beyond every relative embodiment, and your State *is* but a means". The answer depends on the reality of the Absolute in its relativity. A partial embodiment of an end is something other than a means.

[2] *Rts.-Ph.*, sect. 1. [3] *Ibid.*, sect. 27.

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the self-end in the social and political organism is Freedom, or the will which is adequate to the notion of will. Its factors are determined by the nature of the notion, and primarily are not individuals as discriminated by their bodies, but strata of feeling and volition in the ethical order as a whole, or powers and activities in the State proper, which is the effective scaffolding—a living scaffolding—of the ethical order. The factors or moments of the ethical order, he describes, as is well known, as the family, the economic or bourgeois society, coincident with the purely protective State, and the State proper, or political organism; those of the State proper are the legislative power, the executive government, and the monarchical will as bringing the whole to a point. In both cases Hegel has in mind the current physiological distinction between sensibility (to which he compares the family), irritability, the moment of action and separation (to which he compares the bourgeois society or economic world) and reproduction or self-maintenance as representative of the totality of the organism, with which he might have been expected to compare the political State as a whole, but which he does merge in sensibility, as the sense of totality, comparing the State proper to the organised nervous system as a whole. He knows that these comparisons are mere comparisons, and does not seem to lay great stress upon them.

In our language, then, the self which is the end, or the end which is the self, in the social and political organism, is the complete, consistent and self-conscious development of human nature—the full unity of practice and theory as the self-conscious will which wills itself as its object. The body of this soul is necessarily in groups and numbers of human beings, as a universal principle is necessarily developed through and in a plurality of cases. But it is the content and not the plurality which is the determining feature. So in society the end or obligation does not lie in the number or grouping of individuals, but in the manifestation of the will for which these are essential as externality. The distinction of means from end, therefore, cannot apply as between the individual and society as commonly understood. Others and altruism can found no distinction of kind as against self and egoism. How can the service of others be better than the service of myself, if the others are just units by whose accession nothing more is revealed than my own nature contained before? It would be more reasonable, if we must have such a phrase, to say that the individual in one sense is a means to himself in another sense; that in

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respect of his irrational will, an element in his actual will, he is a means to his real or rational will, which cannot be exhibited in a content confined to his given or apparently actual self. The latter involves, therefore, a plurality; but it is not an end because it is in a plurality—a "society"—but because the individual is in contradiction with himself in as far as he fails to realise it, *viz.*, his free and rational will.

This point of view is enforced by the observation that for Hegel there is no sign that, primarily at all events, actual individuals are the factors or moments of the ethical order or of the political organism. As for Plato, so for Hegel, the primary moments or aspects of the social whole are the principal moments or aspects of the human mind, feeling, conation, and intelligence, which, though all in each and each in all, yet run as controlling outlines through the classes and groupings of individuals, and show through them, as if they were transparent, how these universal qualities cohere in the constitution of the social will. Doubtless, in ultimate analysis, every individual is even for Plato a differentiated organ of the whole; but he is an organ, if we may venture on a mere illustration of a hazardous kind, not as hand or heart (for the social hand or heart is a complex of institutions or a pervading fibre of feeling) but as a cell within such an organ. The primary moments, the great factors of Society as a will, are for Plato the classes in which aspects of mind are embodied; and for Hegel also, the classes, together with the recognised powers through which the community utters itself as a whole. The individualist world of needs and satisfaction which under the name of bourgeois society Hegel admits into his system by an intentional deviation from Plato, is of course only relatively individualist, and is admitted not because it represents the whole self of the individual, but because it represents an element which seems essential in that self, and which, from its nature, can be represented in no other way. But this moment, like all others, is only rendered possible by the whole within which it subsists, and through its universal bearing expresses that whole in a mode necessary to its completeness.

The result then seems to be that in calling the political whole, and by implication the social whole, an organism, Hegel does not mean anything which can be intelligibly expressed by saying that society is an end to its members. The end, if we must use that term, is, I suppose, the completest embodiment of the idea compatible with the finite

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conditions of life; and presents itself to the actual individual as asserting his human nature and satisfying his will; just as the judgment presents itself as an effort to utter the truth. In both cases the effort essentially involves a relation to plurality, not for its own sake, but as a source of organisable content; yet the plurality, again, cannot be called an external means to the development of the original unit, because it is itself on one side in identity with that unit, and that unit, as a unit, is as much a means to the plurality as the plurality to it. The plurality in short is an externality which is a *sine qua non* of the whole process at this stage, but cannot possibly be taken *per se* either as an end or as a means. If we thought it worth while to say that *qua* mere plurality, *e.g.* in respect of the majority of its votes, society is a mere means to the rational development of human nature as forming its own content, this would be the truest sense in which the contrast of means and ends could be applied to the question. In short, to speak of the separate ends of individuals, as to speak of separate individuals as means, is, so far as I understand the matter, a contradiction in terms. To say, therefore, that because their ends are not separate, they are as a consequence merely social ends, in the sense that separate individuals are means to ends which arise when without change of content they are together, is equally unjustifiable as to say that when together in society they are thus a means, to ends which they have considered as apart. I suggest that the comparison with the logical relation of the higher universals to number and classification is worth pressing; but I must break off at this point.

2. "There is nothing in Hegel's Metaphysic which entitles us to assume [supposing that we accept this metaphysic on the whole] that our society is or ought to be an end for its individual members."

Hegel's Metaphysic consists in substance, as I understand it, of approximations to the absolute, warranted by the contradictions which arise at every point if we attempt to rest in the prior approximations as complete. It is postulated, as I understand, slightly modifying Mr. McTaggart's account of the matter, that we bring to the scrutiny of every datum an intelligence which, $\alpha$, contains in its own nature an implicit affinity with the Absolute,and, $\beta$, has made that affinity more or less explicit by specific knowledge and training in the various matters of experience. The Logic is the prerogative example of the application of such an intelligence to the establishment of a necessary progression from very

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simple data up to the Systematic Idea. It deals with abstractions so interwoven in the whole nature of experience that theoretically speaking any simplest unit of reality would be sufficient as a suggestion from which the whole system might be read off. Such a connexion of truths may be called *a priori* by the same illusion, or at least in the same sense, in which this character has been ascribed to mathematical inference. The meaning is not that experience can be dispensed with in constructing the scheme of reality, but that very simple experience, and experience of any kind, is enough to suggest the very general characters of thought or perception which are in question. But between the establishment of necessary connexions of this highly abstract nature, and that of necessary connexions in more concrete matter, so long as it is matter which does not disappear in the very act of passing into the form of thought, I see no technical difference but one of degree; and the general possibility of error or even of discrepancy with other relative forms of rational progression cannot in any way be admitted as an argument against steps of reasoning which are not impugned on definitely relevant grounds. I suggest therefore in the first place that the philosophy of Objective and of Absolute Mind falls fairly within the limits of Metaphysic, but dismissing this as a verbal question, I suggest in the second place that the relation of Life in the Logic to Will and Cognition is essentially the same transition as that which appears throughout Hegel's ethical and political studies as the transition from life to free or self-willing will. I do not admit, however, that in following Hegel's further studies we are bound by the transition in the Logic. The structure of experience is infinitely alive with the notion, and a serious analysis may trace it everywhere and on its own merits, not merely by the reflected light of more abstract metaphysic. Discrepancies are to be expected, so long as our starting-points are not brought together and our directions of advance stated in terms of each other. As Hegel says, we cannot do everything at once, but we must trust the notion; which is the same thing as saying, that we must believe knowledge to be real.

The connexion on which Hegel's conception of the State depends is the relation of the Free Will to practical and theoretical mind, or, further back, to Reason, Consciousness and Self-Consciousness. If this connexion cannot be overthrown, as I do not see that it can, remembering that philosophy has only to construe existing experience, then the general nature of the Free Will, constituting the sphere

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of Hegel's Objective Mind, must follow from an analysis, which if not to be called Metaphysical, is in no respect of less validity than that of the Logic. With the view thus implied of the relation of Individuals to Society, the continued existence of given selves in the absolute and *a fortiori* the continued conjunction of given selves as conjoined in the present, ceases to be a requirement. I may add one word on this head, to illustrate the practical superiority of Hegel's view. Family feeling, for instance, as an element in human nature developed within a given society, is not confined to members of family groups, but becomes a general atmosphere, a feature in the social mind, participated in by those who have of their own no existing family. Nor is a free law-abiding will dependent on the particular individuals, nor even on the particular community, among whom or in which we stand. There is no more convincing experience of the power and value of the universal substance than the transference of the essentials of good-will and good-feeling to new particular surroundings.

It follows from what has been said that the distance between present existence and the absolute is for me no argument against the position that the present State is an end in the sense in which I have attempted to explain it. Nor do I see how in any case such an argument could be applied to the State without destroying all ethical, æsthetic and religious experience root and branch, considered, that is, as appearances of the Absolute. We all agree, I presume, that to experience the Absolute would be to have an experience which we have not. But if we have no ranking of appearances with regard to it, no lines of convergence towards it, we have no right to speak of it or of anything; for all knowledge is on one side absolute or nothing. Especially, on Hegel's theory, there would go, along with the Free Will, the whole experience of Art, Philosophy and Religion, which though still more removed from number and particularity are yet developments of the same spirit that lives in the Free Will. I do not say that even for Hegel these are social activities or rest on social relations, but he leaves us in no doubt that they are for him both the development and the foundation of the self-conscious Will.

3. Enough has been said to show how we must regard the third proposition, motived as it is by a clean cut between the actual and the ideal. If the Absolute is actual in its appearances, in the degree in which they present its general character, it seems impossible that any of them should stand to a future perfection—the term "future" seems irresistibly

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implied—as mere means to end. The end is surely realised in so far as any character of the Absolute is experienced; and no dream of perfection is possible except through such a partial realisation. The ideal is surely nothing of value except as the spirit of the actual. And in drawing attention to the sharpness of this severance between elements which seemed to us all but the same, we may note what seems a misapprehension in fixing the view on the externals and accidents of society, at the expense of the principle that vehicles of the idea cease to be mere externals. Neither mere matter nor mere time can be experienced in the sphere of Objective Mind.

4. I will end with a few words about the guidance in action to be expected from philosophy. I agree that philosophy as such can tell us nothing constructively of the details of social reform. It tells us neither if in fact a proposed measure will loosen or tighten social bonds, nor if at the moment it is desirable to do the one or the other. Philosophy only construes the actual, and endeavours to elicit from it with more and more completeness the general character of reality, and the value of things in its light.

But yet, I think, it does more than Mr. McTaggart admits. Granting that our immediate grounds of action are to be "empirical" (*i.e.*, I suppose, resting on facts or truths which we cannot yet connect with the main system of knowledge), philosophy teaches us how to experience. For experience, as some one has pregnantly said, is what we experience. And what we experience depends upon what we are, upon our equipment of mind, and on our capacity for receiving ideas. At least philosophy may protect us from superstition and narrowness. It may, I think, do more, but I am content to insist on this. I agree that philosophy by itself can say nothing decisive as to what is best to be done about property and the family. But if, for example, from bad philosophy, or a mental twist equivalent to bad philosophy, measures are proposed on the ground that certain conditions are incompatible, which we know to be in a general way inseparable and reciprocally intensifying, philosophy can abate the presumption, and leave the ground clear for genuine appeals to fact. Here as throughout we are met by Mr. McTaggart's insistence on the remoteness of the ideal, and on our ignorance of the road to it. This view is essentially connected with his attitude to the relation between the Dialectic and the other studies, and his conception of the significance attaching to the change of method in the Dialectic. Enough

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has been said to indicate the line which seems to me the true one in face of these contentions. Those especially who will carefully study Hegel's great outburst in the *Philosophy of Right*[1] on the relation of the State to Religion will see how far Mr. McTaggart's spirit differs from his. But this is by itself no proof that his criticism is ill-founded, and I should like to end with the admission that while joining as well as I can in the discussion which has been raised, I believe that we are only beginning to grasp the problems which it involves.

[1] Sect. 270.

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# II.—A CONTRIBUTION TOWARDS AN IMPROVEMENT IN PSYCHOLOGICAL METHOD.[1] (I.)

By W. McDougall.

## PART I.

### On Some Deficiencies in Current Methods and Their Source.

Psychology has been and, by some writers, still is defined as the science of conscious processes or affections of consciousness, and the older psychologists described mental life as consisting in the performances of various faculties of the conscious soul or ego. Perhaps the greatest improvement in modern methods of psychological description has resulted from the recognition that these faculties of the soul are but names that concealed our ignorance, and from the consequent reduction of their number, and the limitation of the sphere of action ascribed to them. At the present time the many faculties of the soul have been replaced by a few functions of the mind, such as perception, apperception, attention and volition, and of these it is more or less explicitly recognised by many writers that they are but convenient terms by which we designate very complex processes—networks of cause and effect.

A second very important advance in psychological method in recent times has resulted from the recognition of the fact that it is not only the clear, vivid affections of consciousness with which the science has to deal, but that it must take account of other processes also, processes less easily recognisable by direct introspection, and in fact usually only discoverable indirectly by inference.

The purpose of the present essay is twofold.

Firstly, I wish to point out that current methods of psychological description are still imperfect, because the two improvements mentioned above have not been carried far enough, to urge that some of our leading writers have not

[1] Read before the Aristotelian Society, 29th Nov., 1897.

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yet completely freed themselves from the influence of the faculty-psychology, or are still hampered by the definition of their science, as that of conscious processes, and by their reluctance to recognise frankly the importance of the part played in the mind by nerve processes that have no immediate conscious correlates, refusing to admit that there can be no complete science of conscious processes, that the science of mind must give account of both neurosis and psychosis, and that therefore a clear conception, or at least a good working hypothesis of the relation between them, is all-important for psychological method.[1]

Secondly, I wish to attempt a clearer statement than has yet been formulated of the relation between neurosis and psychosis, since, whatever the nature of that relation may be, a clear conception of it seems to be essential to a consistent method of description of mental processes.

The former object may best be attempted by pointing out how the methods of some of the leading writers of the present time differ among themselves, and how these current methods necessarily involve obscurities and inconsistencies, owing to the deficiencies in question.

## Critical Remarks on the Methods of Some of the Leading Psychologists of the Present Time.

It will be convenient to preface these remarks with examples of a class of difficulty, in dealing with which the inadequacies of current methods, and the need for a clearer conception of the relation between neurosis and psychosis, are particularly obvious. A common source of difficulty is the adherence to the old definition of mental processes, as necessarily consisting in some kind of affection of consciousness. For we have evidence that there are factors that play a part in determining our actions and our states of consciousness, but which do not directly affect consciousness. How then are these to be described, if not as mental processes?

[1] Throughout this essay I shall use the words 'mind' and 'mental' to denote the sum of all the processes, nervous and conscious, that intervene between the stimulation of any sensory nerve or end-organ, and the passage of nervous impulses to the terminations of the efferent nerves, *i.e.*, the sum of the functions of the nervous system. I am aware that this usage of the words is unusual, but it is, I think, convenient and justifiable, since we have no other word that is used in this sense, while there is an abundance of synonyms for the words 'mind' and 'mental' in their usual rough application. And I shall use the convenient words 'psychosis' and 'neurosis' as used by Huxley, to denote conscious processes and all nervous processes as distinct from conscious processes respectively.

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A second difficulty may be stated as follows. An action which, when first performed, is associated with and seems to be the result of conscious processes may, when often repeated, come to be performed unconsciously. What is the difference in the two series of events leading to the same action? And is such an action a result of mental process in the one case, and not in the other? A third difficulty, closely allied to this second one, is that there occur, both in man and animals, simple reflex processes that seem to be wholly unconnected with consciousness, and may be carried out by small isolated parts of the nervous system. Yet we may form a series beginning with such processes and proceeding up to the most completely conscious actions, let us say, a self-conscious act of self-denial, a series in which the members may be so closely similar, that it is impossible to say that at any one point consciousness comes in as a new factor. And such a series may consist of instances of the behaviour of any one man, or of the reactions to stimuli of a series of organisms from the lowest animals up to the highest, man.

Turning now to the criticism of individual methods of description, I wish to point out how Prof. James Ward's article on Psychology in the *British Encyclopædia* is vitiated by the two deficiencies that I have defined above, and shows especially well the logical connexion between them.

Ward recognises three varieties of the Ego: firstly, the metaphysical conception of a soul; secondly, the biological or empirical Ego, and thirdly, the psychological self to which all objects are presented, to which everything mental is referred, the pure Ego or Subject that is conscious of everything that is in the mind. The adoption of this hypothesis of the psychological Ego is of course purely a question of method. To ask 'Does such a pure Ego really exist?' would be absurd. This working hypothesis of the pure Ego forms the key-note of Ward's method, and leads logically enough to the refusal to consider physiological factors with or without consciousness, as playing a part in mind (as when he writes on p. 41, 'considerations of method compel us to eliminate physiological implications'), and to the adoption of the hypothesis of sub-consciousness. For, 'whatever admits of psychical reproduction and association' is 'an object presented to a Subject,' and 'the Subject is more or less conscious of what is presented'. Then, since there are mental factors capable of psychical reproduction that are certainly not in consciousness, these must be said to be subconscious, in order to avoid what Ward calls 'the contradic-



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tion in terms' of the phrase 'unconscious mental modifications'. The contradiction in terms being thus reduced to a contradiction in one term, Ward heroically carries out the method so determined to its logical extreme. As Mr. G. F. Stout points out, this hypothesis is 'in the last degree unnatural and hard to be believed,' yet that is of little moment if it lead to a good method. But, as Stout further points out, it cannot be consistently worked out. For Ward is driven to admit that there is much that is latent in presentations below the threshold of consciousness, that becomes evolved as they rise above it. How then are we to regard these latent factors, do they belong to consciousness of a third kind or degree? Is their 'esse' also 'percipi' by a still wider kind of consciousness? And do these latent factors themselves contain undiscriminated elements perceived by a fourth grade of consciousness?

But there are other and more important drawbacks to this method. The method leads to the classing together of two very different kinds of thing, namely, the passive contents of memory and active processes of the mind that have no immediate conscious correlates. It necessitates, as Ward says, the elimination of physiological implications, a process that, as Bain[1] points out, never has been, and never can be carried out, and leads to the deliberate refusal to seek aid in physiological considerations, although it is now generally admitted that these have given some light on psychological problems, and are likely to give still more. It is ill adapted for making use of the large body of knowledge that is being built up by the methods of psycho-physics. And although the hypothesis of sub-consciousness enables the method to deal with the first two of the difficulties that I have specified, it is completely helpless before the third of them. For it is scarcely possible to hold that the afferent nervous impulses, that determine the emptying of the bladder by a fragment of the spinal cord, cut off from the rest of the central nervous system, form an object presented to the psychological subject, and yet such reflex actions form the lower steps of a series whose higher members are fully conscious mental processes, a series in which no sharp line or break can be pointed out. The hypothesis of the conscious psychological subject, to which everything mental must be referred, fails then to satisfy any one of the three primary necessities of a good working hypothesis. For it does not enable us to describe consistently what has been already

[1] "On Physiological Expression in Psychology," MIND, vol. xvi.

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ascertained ; it is not well adapted for the discovery of new truth, and it fails to take account of all the facts that must be dealt with.

The adoption of this method, involving such deficiencies, seems to me to be a hampering of psychology by an attempt to adapt the metaphysical conception of the Soul to psychological purposes. The doctrine of the reception of presentations by the Subject, would seem, in fact, to be the last refinement of the faculty-psychology. We are asked to make these sacrifices of method, in order that (to put it somewhat crudely) old-fashioned definitions may be adhered to.

Prof. W. James [1] has done much to secure recognition of those mental factors that aid in determining the course of thought without being clearly discriminated in consciousness, that cannot be directly apprehended by introspection, for the existence of which we have, in fact, only indirect evidence from retrospective observation of the course of the stream of thought. These processes he describes as the 'psychic fringe of thought,' as 'series of faint brain-processes influencing our thought and making it aware of relations and objects but dimly perceived'. But he is unwilling to admit that they are wholly or in part merely brain-changes without conscious accompaniments, for, like Ward, he inclines to attribute consciousness as an accompaniment to all brain-changes, and assumes 'a blank unmediated correspondence, term for term, of the succession of states of consciousness with the succession of total brain-processes'. He frankly rejects any hypothesis of subconsciousness ; thus (p. 173) : 'There is only one phase in which an idea can be, and that is a fully conscious condition. If it is not in that condition, then it is not at all.' But he continues thus : 'Something else is in its place. The something else may be a merely physical brain-process, or it may be another conscious idea. Either of these things may perform much the same function as the first idea, refer to the same object, and roughly stand in the same relation to the upshot of our thought.' Here then is an admission of the efficiency of unconscious mental factors. And we find this admission repeated. Thus, in formally refuting the proposition that there are unconscious mental states, James writes : 'Thinking of A, we presently find ourselves thinking of C. Now B is the natural logical link between A and C, but we have no consciousness of having thought of B.' 'Either B was consciously there, but the next instant was

[1] *Principles of Psychology*, vol. i.

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forgotten, or its brain-tract alone was adequate to do the whole work of coupling A with C, without the idea of B being aroused at all, whether consciously or unconsciously.' The whole of this discussion, directed to the refutation of the existence of unconscious mental states, arises from the fact that he is dominated by the definition of mental states as necessarily states of consciousness, and he devotes twelve pages to proving that mental states cannot be unconscious, while repeatedly admitting in the course of the discussion that mere physical brain-changes, without consciousness, may perform much the same functions as ideas in determining the course of thought. Does he not see that the merely physical brain-changes, whose efficiency he admits, are the unconscious mental states that he is so elaborately refuting; that the whole matter turns upon his implicit definition of the word 'mental'; that there are not three things in question—conscious processes, unconscious mental processes, and merely physical brain-changes, but only two, on the one hand conscious processes and on the other hand nervous processes without consciousness, to which latter we may or may not allow the application of the word 'mental'?

In the course of the same argument James takes up the second of the three difficulties that I have mentioned above, the fact, namely, that fully conscious actions may come to be performed unconsciously. In upholding the doctrine of the non-existence of unconscious mental states, he is driven to put forward the fantastic alternatives, that either these actions are consciously performed, but so quickly and inattentively that no memory of them remains, or that they are performed by split-off fragments of consciousness. How much simpler and more satisfactory to regard these actions as carried out by the merely physical, or, as I would rather say, physiological activity of brain-tracts, whose efficiency he elsewhere recognises!

James does not formally deal with the third of our three difficulties, but in treating of a simple reaction he writes, it is 'a reflex action pure and simple, and not a psychic act'. Presumably then he admits that a simple reflex action may occur without affection of consciousness. And in treating of instincts he writes, that they are of the pure reflex type of action, that 'all the phenomena of instinct are explicable as actions of the nervous system, mechanically discharged by stimuli to the senses' (p. 168). And of man, he writes that he has more instincts than any other animal. All this (excepting the phrase 'mechanically discharged') is, I think, quite accurate, but it is hardly consistent with his state-

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ments with regard to the relation between nervous processes and conscious processes.

Similar obscurities and inconsistencies, arising from the attempt to describe mental processes in accordance with these statements, occur frequently throughout his book, and are especially noticeable in his treatment of association and discrimination. Mr. G. F. Stout[1] has pointed them out, showing that James' method logically involves the denial of the possibility of what constantly occurs, namely, the retrospective filling in of the detail of past presentations.

James, too, has not quite freed himself from the primitive tendency to personify complex obscure processes. For though the living active soul is explicitly set aside by him, in his function as a psychologist, yet it is reintroduced, having suffered at his hands a pathetic *reductio ad absurdum* in becoming the passing thought that thinks things or thoughts, or 'the perishing pulses of thought' that may 'recollect and know' (p. 371).

Mr. G. F. Stout begins his recent work on *Analytic Psychology* with a definition of the science that seems to me to promise a very great advance in method. He defines psychology as 'the positive science of mental process,' and further states that mind has an 'unconscious constituent'. And he nowhere invokes the conscious soul, or perishing passing thoughts, as agents that do the work of the mind. The part played by the unconscious constituent of the mind is recognised in various passages. Thus in discussing the analysis of presentations, and the difficulty raised for James and others, by the fact that we may by attention fill out, develop (to adapt a term from photography) the details of past presentations in representation; he concludes that we have to do here with mental dispositions that fall outside the sphere of consciousness (p. 64). Again, in treating of 'Implicit apprehension,' he agrees with M. Ribot that, in the understanding of a word without mental imagery, unconscious processes are involved (p. 83), constituting implicit apprehension. Again, in treating of psychic fringes, he insists upon their very great importance in determining the course of thought (p. 93), in this going further than James; and he describes the psychic fringe as being implicitly apprehended.

Then, since on p. 175 he distinctly states that what exists implicitly does not exist at all, it is fair to take the above passage as meaning that the psychic fringe is of unconscious

[1] *Analytic Psychology.*

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processes. And in the two following passages the 'unconscious constituent' receives full recognition: 'Only part of the factors which determine mental processes are definitely recognisable in consciousness. The rest, even if they are not unconscious, are at least undiscriminated' (p. 16), and 'Every assignable instance of psychical activity seems to involve the co-operation of factors which are not modes or states of consciousness, and which are not the immediate physiological correlates of consciousness'.

Yet in spite of these statements, explicit and implied, the word 'mental' is repeatedly used as equivalent to 'conscious,' and the method adopted is to describe all mental process in terms of consciousness, or at least in terms of something other than physiological nervous processes. Thus, while rejecting the hypothesis of sub-consciousness, as used by Ward, as being 'in the last degree unnatural and hard to be believed,' and as leading to inconsistencies, Stout does not frankly adopt the physiological hypothesis, but makes use instead of a doctrine of 'unconscious psychical dispositions'. This is avowedly done on grounds of practical convenience, as conducing to the most useful and effective method, though with the reservation that it is theoretically justifiable. The difference between the hypothesis of 'subconscious states,' as used by Ward, and that of 'unconscious psychical dispositions,' as put forward by Stout, seems to be that the former are regarded as similar in composition, as it were, to past conscious states, as like in kind, but of lower intensity, while the psychical disposition is conceived of as something more massive and complex than any one state of consciousness, as a resultant from many conscious processes. In so far, the latter doctrine seems to me to be still more unnatural and harder to be believed than the former. Yet it must be admitted that this doctrine of psychical dispositions forms the key-note of a method which, in Stout's hands, shows itself highly effective, and which enables him to avoid or surmount many of the difficulties that beset Ward's method. Nevertheless it does, I think, lead to certain obscurities, if not inconsistencies, of statement. Thus, in the passage quoted above, the 'psychic fringe' is said to be implicitly apprehended, *i.e.*, not apprehended at all, and again (p. 182) we read that "the special object of attention at any moment always has a psychic fringe; it is presented as a constituent part or aspect of some kind of whole. This whole itself may be only implicitly apprehended; it perhaps never appears in explicit detail," and again, "the thing as a unity in multiplicity is *present to consciousness* as

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a psychic fringe". And the distinction between attention and inattention is said to be coincident with that between noetic and anoetic consciousness, and in the field of conation it is said to be coincident with that between volitional and automatic action.

The obscurities and, shall we say, verbal inconsistencies of these and similar passages, which lead the reader repeatedly to ask himself which of these processes are conscious, which unconscious, might, I think, be removed by a fuller, franker recognition of the part played in mental activity by purely physiological processes, as distinguished from processes involving consciousness, by freeing ourselves entirely from the influence of the definition of psychology as the science of conscious processes, recognising that the flow of mental activity involves physiological processes without, as well as those with, immediately correlated consciousness, and by assigning consciousness only to those processes to which we are compelled to assign it by introspective evidence of its occurrence. If we do this, we shall, I think, admit that all those processes described as subserving implicit apprehension, as being undiscriminated, as not attended to, as automatic, as forming anoetic consciousness,[1] are nervous processes, having no immediate conscious correlates, and we shall regard the unconscious psychical dispositions as physiological dispositions of the brain substance. By so doing we shall not only avoid obscurities of statement, but we shall make this method better fitted for the discovery of new truth. For instead of dealing with consciousness, unconscious psychical factors and nervous processes, we shall describe mental activity more simply, in terms of consciousness and nervous processes only, and shall have a method well adapted for making use of the constantly growing body of physiological knowledge, for throwing light in turn upon physiological problems, and for enabling us to arrive at a clearer understanding of the fundamental problem of the relation of consciousness to nerve processes.

This short examination of the methods of some of the leading contemporary psychologists thus emphasises the importance for psychological method of a clearer conception of the relation between neurosis and psychosis. For if, with Ward, we could ignore the neural processes, and describe mind in terms of conscious processes only, this relation would be a matter of small importance for psychology. But

[1] There is one form of consciousness to which, as it seems to me, this phrase 'anoetic consciousness' is perhaps strictly applicable, and that is the consciousness of pain. To this point I shall return below.

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we find that Ward's method involves very great assumptions for which there is no evidence, besides inconsistencies of statement, and, worst of all, it is ill adapted for the discovery of new truth. While if, with James and Stout, we admit, as we must, that unconscious processes play a part in mind, then we find inconsistencies or obscurities arising from the lack of such an accurate conception.

## The Doctrine of the Simple Concomitance of Consciousness.

There is a view of the constitution of mind, held by a large and increasing number of writers, which, like that held by Prof. Ward, tends to minimise the importance of the relation of consciousness to neural process. Just as Ward's view seems to be the result of a too exclusive occupation with conscious processes, so this view seems to be the result of an exclusive occupation with nerves and nerve processes. It is the view of the simple concomitance of consciousness (to use Dr. Hughlings Jackson's phrase), that is held by almost all neurologists. According to those who hold this view, consciousness must be regarded as a mere epiphenomenon that in no way affects the course of neural processes; they believe in fact that the latter would run exactly the same course, whether or no consciousness accompany them. If this view were shown to be true, it would still be important to establish, if possible, empirical laws as to the relation of psychosis to neurosis, that we might argue from the former to the latter, and so make use of the study of conscious processes, as an aid to the building up of the science of neurology. But our attitude towards psychology and its methods would be profoundly altered. It is therefore necessary to examine this view of consciousness as the simple concomitant of neural process before proceeding to the attempt to define their relation in any other way.

Psychologists are usually content to reject this view, on the ground that we have an intuitive conviction that our states of consciousness do play a part in determining our actions. But this argument does not weigh with the neurologists, and perhaps rightly so. However that may be, I wish to point out that this view, when critically examined, proves to be at most but an ill-based working hypothesis, which is at variance with some of the widest and best established generalisations of the human mind, and which fails to take account of all the facts. If we can formulate an hypothesis more in harmony with our widest generalisations, and

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taking account of more of the facts, then the doctrine of simple concomitance must be given up in its favour.

What then are the grounds for this assumption? So far as I know, they are two, and two only. Firstly, it is said that it is impossible to conceive how consciousness can affect the motion of molecules, and neural processes consist in whole, or in part, of the motions of molecules. Secondly, we know that complex neural processes may, and often do, run their course from sensory organ to motor organ without there being any evidence of accompanying consciousness, and it may perhaps be fairly asserted, actually without any affection of consciousness. The former ground has been put forward with varying degrees of crudity and confidence. We find, on the one hand, Prof. Tyndall asserting, in his famous Belfast Address, that 'we have no organ that can bridge the gap between consciousness and molecular motion'. On the other hand, we find Dr. C. Mercier,[1] who, having assimilated in their crudest forms the doctrine of the molecular constitution of matter, and the mechanical hypotheses of force, exhibits such a familiarity with the behaviour of molecules, as might lead us to suppose him to be one of Clerk Maxwell's demons that have devoted themselves to the sorting of molecules since molecules first began. Having read the works of Mr. Herbert Spencer, he accepts his every tentative suggestion as established fact, and brings the works of that great master into disrepute, by fatuous references to the impossibility of molecules being bound together by thoughts of beef-steaks; setting up as the test of what is possible his own imagination, an imagination which seems to be limited by an imperfect acquaintance with the elementary text-books on physics. Let us grant, for purposes of discussion to those who put forward this argument, that neural process does consist in part or whole of the motion of molecules. It remains true that a molecule is a conception built up by remote and indirect inferences from those reactions of our sense organs, in response to differences of energy between them and their surroundings (as Prof. Ostwald puts it), which form our only means of communication with the outside world; that the motion of molecules constitutes but a very small part of the total energy of which we have knowledge; that the mechanical hypotheses of other forms of energy are far from being applicable to all, or even fully applicable to any one; and that it is just as impossible to conceive how 'gravity' causes two worlds to fall towards

[1] *The Nervous System and the Mind.*

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one another, how two masses striking together generate radiant heat, or how one mass striking another can impart to it some of its momentum, as to conceive how the thought of a beef-steak may bind two molecules together. The difference is merely that we are more or less familiar with the utterly mysterious sequences in the former cases, while the last sequence, if it occur, cannot be directly observed, and therefore is not familiar to us. But the answer to this argument is simple and obvious. The neurologists generally do not deny, but assume, as they are bound to do, that the motion of molecules may affect consciousness, may cause the thought of a beef-steak, although we have no organ that can bridge the gap. Yet this causal sequence is as inexplicable as the reverse one would be, and every other one is.

But the more acute supporters of this view take their stand on the second, rather than the former of the two grounds. Thus, Prof. Huxley has definitely enunciated this doctrine of concomitance in his essay on "Animal Automatism," adducing as the grounds for his view instances of complex purposive actions that seem to occur without any affection of consciousness, such as those of a frog whose brain has been destroyed, and of men in abnormal states. The argument seems to be: here are purposive actions of complex character carried out by neural processes, without the occurrence of consciousness, therefore, when consciousness does accompany neural activities, it is highly probable that in these cases also the neural processes alone determine the resulting action, consciousness being merely a bye-product, and as completely without power of modifying the course of the neural processes, as the whistling of a locomotive is without direct influence on the working of its wheels. And Huxley clearly means that a brain could work in exactly the same way with or without consciousness.

I venture to think that Huxley has confused two issues here, that he draws from his premisses two conclusions, only one of which is valid. The valid conclusion is that in all cases there intervenes between stimulation of sensory nerves and the resulting motor innervation, a continuous series of neural processes in the relation of cause and effect; that this series is predetermined by the nature of the afferent nervous impulses and the state of the nervous system at the moment, and that any consciousness accompanying the series is similarly predetermined by the same factors, and neither forms by itself an integral part of the network of cause and effect (*i.e.*, a whole cross section in time) nor intervenes as an uncaused cause to determine in any way the course of the

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neural processes. The other conclusion, which is not valid, is, that when consciousness occurs it is without effect of any kind on the brain, and its future possibilities. To establish this it would be necessary to show that neural processes may run exactly the same course in two cases, with and without consciousness, and, further, that the state of the brain after the passage of the neural processes, was exactly the same in the two cases. It is just this that cannot be proved to be true, and I hope to show that the evidence is all the other way.

Turning now to the objections to this doctrine of simple concomitance, and putting aside our immediate intuitive belief in the activity of consciousness as being of doubtful value, the main objections seem to be three in number. Firstly, however we attempt to represent to ourselves this relation of simple concomitance, whether with Huxley and Mr. Shadworth Hodgson we assume that consciousness is caused by neural processes, but in no way reacts upon them, or with Hughlings Jackson and Leibnitz adopt the 'two-clock' or 'two-parallel chains' view of the relation, we cannot bring it into harmony with our general conception of causal sequence, a conception which, subsuming as it does the laws of action and reaction and of the conservation and equivalence of energies, is perhaps the best established of all our generalisations. Huxley seems to forget that the whistling of a locomotive involves an expenditure of part of the potential energy of the coal-bunkers. But this objection has been pointed out by others and is in itself of no very great value, and we therefore need not dwell upon it.

A second well-founded objection to this doctrine is the teleological one. This, like the former, has been put forward by various writers; by Mr. Bradley, among others, in MIND, vol. iv. We have learnt to believe from innumerable instances, among which there is no established exception, that any phenomenon constantly appearing in any group of animals has, or has had, a useful part to play in the development of the individual or the species, and the more constant and widely distributed the phenomenon, the more certain is this inference. This special case of teleology has acquired a strong and reasonable basis in the theory of natural selection. Now there is every reason to believe that consciousness occurs not only in myself, but in other men, and in all the higher animals, and the principle of continuity makes it seem highly probable that it is present in some degree in the lower animals, and even in the very lowest.

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It is then very difficult to believe that consciousness has no useful function. Further, it would seem that it is consciousness on which natural selection has chiefly worked, and by which it has attained its greatest triumphs. For when, in the animal scale, we rise above the lower forms, it is the conscious processes that form the scale of the degree of development, and that seem to be all-important in determining the survival of a species or an individual. While in the case of man, the results of the struggle for existence between individuals and between societies, depend almost entirely upon the degree of intensity and complexity of consciousness attained. But a very serious objection to this argument may be made by the neurologists. They may say, 'Ah, yes! quite true, but then it is only the neural processes underlying the psychoses that have been so carefully and laboriously selected; we have shown already that consciousness does but accompany them in a futile mysterious way, and if you wish to give a meaning to it you must suppose that some malign god has set going these conscious processes, in order that men may realise their own misery and learn to laugh at their passing gleams of happiness'. The answer to this objection is not far to seek, and to me it seems conclusive, though I do not know that it has ever been stated. It is embodied in the third and most important objection that I raise against the doctrine of simple concomitance.

If all neural processes were accompanied by consciousness in equal degree, or in proportion to their intensity or complexity, or if some were so accompanied, and others were not, and there could be found no law of the occurrence of consciousness, and especially if it could be shown that a set of neural processes may run the same course with the same results in two cases, one with, the other without, consciousness, then the neurologists would have a very strong case, against which the two arguments set forth would be of no avail. But the fact is, that some neural processes are accompanied by consciousness, and some are not, and the former are constantly different in character, circumstances and results from the latter. Why then, if consciousness plays no part, and neural processes are the only factors in mind, was mind or brain power built up by natural selection so largely out of those that have conscious accompaniments? Why is it that this kind of neural process has come to play a larger and larger part relatively to the other kind, as we trace them in animals higher and higher in the scale of complexity of adaptation to the environment? This argument may be enforced by a further consideration of Huxley's

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analogy of the whistling locomotive engine. If the engine whistled frequently and irregularly, sometimes for long, sometimes for short periods, and we could discover no correspondence between its times of whistling and anything in its environment, such as tunnels or railway stations, we should be forced to admit that the whistling seemed to serve no useful purpose, that the train might run just as well or better without it, and we should have to admit that this beautifully constructed machine allowed of a great waste of energy in thus uselessly whistling. But if we had good grounds for believing that it had been carefully prepared and adapted to its work, we should still suspect that the whistling served some useful end, though we could not discover it. But let us modify the analogy a little, and take, instead of a railway engine, a motor-car, and let us suppose that we notice that so long as it runs to and fro in the streets of its own suburb, where it is well known, and where the traffic speedily gets out of its way, it does not whistle, but that whenever it goes out into streets where it has not been before, and is therefore not known, then it whistles loud and long, and has to choose the streets where it can get through most easily. And let us suppose that every time it passes again through these streets the traffic gets out of its way more readily and it whistles less and less until, when it has passed through these districts several times, it runs swiftly on without whistling and without deviating. Then we should conclude that the whistling served some useful end, although it neither drove the piston nor turned the steering wheel, and though, in some streets, the car ran without any whistling. I hope to show in this essay good reason for thinking that consciousness bears to the occurrence of neural processes a relation very similar to that between the whistling and the running of the motor-car. The remainder of this essay will therefore complete the refutation of the doctrine of simple concomitance.

## The Views of Psychologists towards the Question of the Relation between Neurosis and Psychosis.

We find then that the doctrine of simple concomitance held by almost all neurologists and 'psycho-physicists' is entirely unsatisfactory. Let us therefore shortly review the opinions of those who reject this doctrine, namely, almost all psychologists, and see whether they offer any more acceptable doctrine.

Psychology is older than physiology by many generations,

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and when it was first shown that the processes of mind were largely determined by, and produced their effects by means of, impulses passing along the peripheral nerves and the cord and lower parts of the brain, the current conception seems to have been that the afferent nerves carry impulses into the mind or soul, which being affected by them, and having some of its various faculties aroused, sends out along the efferent nerves the impulses appropriate to the carrying out of its designs. Some such view seems to have been commonly, though loosely, held until cerebral physiology was far advanced, and seems to have been tacitly or expressly held by the earlier experimenters who described a sensory and a motor cortex. But it is now perhaps universally held by neurologists that all or almost all psychical processes accompany and are in some way dependent upon neural processes, and that the latter form a continuous series, *i.e.*, that afferent run on into efferent processes without becoming wholly something not neural process.

Unfortunately the older psychologists were mostly brought up on an exclusive diet of metaphysic, a diet that seems to produce much the same effect as one of patent foods on growing infants, namely, an appearance of much substance covering a rickety skeleton, so when they turned to this problem of the relation of psychosis to neurosis, they usually began by asking, 'What is consciousness?' instead of inquiring, 'When, under what conditions does it occur?' They suggested that a state of consciousness is a modification, an affection of the Soul or Ego, or of a pure and simple substance, or of an immaterial substance or unsubstantial material, or that it is a something attached to each molecule of the brain substance. More subtle are the speculations of those who declare that consciousness is the reality underlying the phenomenal neural processes just as some reality may be supposed to underlie all other phenomena. The futility for psychological method of this class of speculation is well illustrated by an article by Dr. Morton Prince in *Brain*, xiv. His argument runs: 'A state of consciousness is not known in terms of something else, but is known immediately in terms of itself, and is therefore absolutely known (it may well be contended that it is therefore absolutely unknown in any proper sense of the words); it is the ultimate reality and of the real nature of the material world we know nothing—the nerve-process that you assume to accompany or generate my consciousness, is really only a state of your consciousness'. This argument is said by its author to bridge over the chasm between mind and matter, and to give an interpretation of the universe as a

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whole, and to be necessarily acceptable, because it does not conflict with any known law. When, from the point of view so reached, he turns to the description of facts, we find that instead of using the term nerve-process we must say 'the unknown activity which is pictured as motion in sensory nerves occasions feeling and other states of mind, and these in turn occasion the unknown activity which is pictured as motion in sensory nerves'. So that Morton Prince really holds the old doctrine that afferent neural processes run into the soul or mind, which in turn emits efferent neural processes, and solves the riddle of the universe by speaking of neural processes as 'unknown activities pictured as motion'. Surely, while recognising the truth implied by this phrase, it is allowable to continue to use the more convenient term neural process.

But the leading psychologists of the present time have accepted the dictum that some neurosis underlies all psychosis, and that the latter is in some way dependent upon and determined by the former, yet they make little serious attempt to define the relation more accurately. Thus Ward, assuming, as we have seen, that all mental processes are affections of consciousness of some kind, states, apparently with approval, that 'of late the tendency has been to make consciousness cover all stages of mental development and all grades of presentation' (p. 48), and again, 'In one respect all psychical changes alike are organically determined, inasmuch as all alike—so far, at least, as we at all know or surmise—have organic concomitants. In another respect no psychical changes are organically determined, inasmuch as physical events and psychical events have no common factors' (p. 43).

Spencer seems to hold that the 'medulla oblongata' is the seat of consciousness, that the immediate physiological correlate of consciousness is the reception by the medullary centres of impulses, from either the sense organ or the higher parts of the brain. He writes, on p. 568,[1] 'that the centre of compound co-ordination to which all centripetal nerves bring their impressions, and from which issue through centrifugal nerves, motor impulses, continues to the last to be the sentient centre. We see that while this centre is the seat of the sensations aroused by external stimuli, and the place in which these are brought into relation with other sensations similarly aroused, it is also the place in which such feelings and relations are feebly re-aroused, in the same

[1] *Principles of Psychology*, vol. i.

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combinations and in other combinations, by discharges through the fibres of the overlying cerebral masses. We see, in short, that the medulla oblongata (with its subordinate structures), while played upon through the senses by external objects, is simultaneously played upon by the cerebrum and cerebellum, so producing the thought-consciousness that accompanies sense-consciousness.' His most definite expression as to the evolution of consciousness is on p. 434, where, after describing the earliest evolved nervous actions as reflex and totally unconscious, he writes: 'In its higher forms, Instinct is probably accompanied by a rudimentary consciousness. There cannot be co-ordination of many stimuli without some ganglion through which they are all brought into relation. In the process of bringing them into relation, this ganglion must be subject to the influence of each—must undergo many changes. And the quick successions of changes in a ganglion, implying as it does perpetual experiences of differences and likenesses, constitutes the raw material of consciousness.' The logical implication of these statements seems to be that a developed consciousness consists in a more rapid and varied succession of stimuli, affecting a still smaller ganglion, or perhaps a single nerve-cell, that simple unconscious neural processes become consciousness through increasing complexity of their combinations. It is also implied in these sentences that the unity of the mind, such as it is, may be explained by supposing all the nervous processes concerned to pass through a very small part of the nervous system. In a later part of this essay I shall have occasion to point out why this latter doctrine, which in some form or other is widely entertained, seems to me entirely wrong and harmful.

James, as we have seen, admits the efficiency of brain-changes unaccompanied by consciousness, and yet his view of the relation in question is that 'the bare phenomenon, the immediately known thing which, on the mental side, is in apposition with the entire brain-process, is the state of consciousness,' and he inclines to the view that 'the ascertainment of a blank unmediated correspondence, term for term, of the succession of states of consciousness with the succession of total brain-processes' is 'the last word of a psychology which contents itself with verifiable laws'.

Prof. Wundt seems to adopt a similar view, when he writes: 'The range of consciousness denotes the sum of mental processes existing at a given moment'.[1]

[1] *Human and Animal Psychology*, Titchener's trans., p. 288.

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It is perhaps the commonest usage among psychologists to content themselves with speaking of neurosis and psychosis as two aspects of the same thing or process, and to compare their relation to that of the two aspects of a curved line or surface. It is then necessary to assume that neurosis in the cerebrum has this double aspect, while elsewhere, in the cerebellum, bulb and cord, it has only a single aspect. How those who hold this doctrine, while rejecting that of the simple concomitance of consciousness, make any real distinction between the two in their own minds, is a problem too subtle for the present writer.

Others, after pointing out that it is necessary to assume some interaction between neurosis and psychosis, set the whole problem aside as insoluble, but of small importance.



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## III.—ON THE LOGICAL SUBJECT OF THE PROPOSITION.[1]

By E. C. Benecke.

It will, I presume, be pretty generally admitted that, with the exception, perhaps, of certain impersonals,[2] every proposition that has a meaning (and it is of such only that I wish to speak) is about something and says something about that something. Also, that the former something is the logical subject of the proposition.

Instead of 'something,' it would no doubt be more correct to say 'some thing or things'. A proposition may, of course, be about more things than one, and it may perhaps say more than one thing about it or them. Indeed it is the object of this paper to draw attention to this very fact and to urge the desirability of a fuller discussion of it and of its relation to the logical import of the proposition or judgment than is usual in text-books of logic. But the distinction on which I wish to insist is not that between the singular and the plural subject; and when, to avoid tedious repetition of 'thing or things' and 'it or they,' I speak of the subject as a thing, I no more wish to imply that that thing must be only one than that it must of necessity be a material thing.

I have just said 'proposition or judgment' because many, if not most logicians of the present day, and the Germans almost universally, speak of Judgments and Concepts rather than of Propositions and Terms. Before I come to my subject it may be well that I should briefly explain why I prefer myself to take the other course and why I believe the ends of Logic to be better served by so doing.

(1) In the first place, every judgment may be expressed in a proposition; and it is as so expressed that it assumes its most definite form. While it is only floating in the mind

[1] Read before the Aristotelian Society,

[2] I do not, myself, think that these form any exception, but I put in this qualification to obviate objection.

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without having been even mentally expressed, it will always be more or less vague—capable of assuming a variety of forms, in each of which its precise import may be more or less different. If we wish to consider its import—and it is, I take it, with this, and with what depends on it, that Logic is concerned—we ought therefore to have it in that form in which that import is most fixed, in that in which any change of meaning will have to show itself in an obvious change of expression; and our nearest approach to this in ordinary use is the form of the proposition. It is therefore after it has been expressed and is in the form of a proposition that the import of a judgment can best be studied.

(2) In the second place, whatever else Logic may be or do, it certainly also is, or has been held by many to be, an instrument for the detection and prevention of fallacies.[1] Now if judgments are to be explicitly used as premisses in either inference or proof, and if the criteria supplied by logic are to be applied to the argument, they (the judgments) must be expressed, if not in words, at least in some kind of symbols; and it is in the process of putting them into words or symbols and subsequently interpreting them that some of the most frequent fallacies have their origin. It behoves us, therefore, to consider the import of the judgment not only before but also after this operation of putting into symbols has been performed, so that it may become apparent if the import of the judgment has been changed in the process.

(3) In the third place, the use of the word Judgment suggests that we are ourselves judging or have judged the thing asserted to be true. But when the judgment appears as a datum or a premiss, this is not the point that concerns Logic. If I assert, *e.g.*, that 'every B is C and A is B,' then I am logically bound to admit that 'A is C'. That is a distinctively logical point and its correctness is quite

[1] Mr. Bradley and Mr. Bosanquet of course do not admit that it can be this. I may remark in passing that such dicta as the following: "The idea that Logic is a judge of scientific results, able to pass sentence, in virtue of some criterion, upon their validity or invalidity, arises from a deep-lying misconception of the nature of truth" (Bosanquet, *The Essentials of Logic*, p. 47), appear likely to lead the unwary or inexperienced reader to confuse two very different things. That a logician is a proper judge of scientific results simply *qua* logician and without special knowledge will, I presume, hardly be seriously contended by anybody: but if it is a "deep-lying misconception of the nature of truth" to believe that it is not essentially impossible to discover criteria for distinguishing between valid and invalid reasoning and that it is the business of logic to consider the distinction and to endeavour to find such criteria, then it is a misconception to which I must plead guilty.

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unaffected, not only by the material truth or falsity of the premisses, but also by my reason for asserting them and by the manner in which I may have arrived at them—whether, *e.g.*, I have judged them to be true myself or am merely repeating what I have been told by another. In such cases the question before Logic appears to be concerned with, not what we really judge or believe to be true, but what is involved in our assertions or beliefs—what we are bound to by our assertions and what we justify others in understanding or inferring when we make them—and the reference to 'judgment' as regards the premisses appears to be irrelevant.

(4) In the fourth place: As a process of thought Judgment is, of course, closely connected with Inference. So closely, indeed, that it is possible to argue that they are in reality the same thing or that the difference between them is a mere question of degree.[1] But the question as to the *import* of a *proposition* is an entirely distinct one from that as to the *validity* of an *inference*. To call the proposition a 'judgment' tends to throw these questions together and to confuse them, and this is much to be deprecated.

(5) In the fifth place: Though Logic has of course to deal with judgments, it should, I take it, deal with them, not as a *process*, not as a *movement of thought*, but as a *product*. The use of the word 'judgment' suggests, if it does not actually assert, the contrary; and does so, I believe, to the detriment of the science. I shall have to refer to this again later.

Logic, it has often been said, has nothing to do with the question whether the propositions that are submitted to it are true or false. Yet a proposition, as an assertion, professes to be true: and it is only as we assert in such a way that our assertions may naturally be understood as intending to state the truth, that we are bound to what they contain. Moreover, if Logic is concerned with the difference between true knowledge and false—or at least with the criteria for distinguishing a true conclusion from a false, a valid argument from a fallacy—it clearly has in some way to do with reality. Consequently, our propositions, so far as they enter into Logic, have a reference to reality. And by the logical subject of a proposition we mean that which the proposition is about. Is, then, the logical subject of every proposition Reality as such, or Reality as a whole? This would appear

[1] Mr. Bosanquet, *e.g.*, often refers to the identity, and in the Preface to his *Essentials of Logic* speaks of "that single development which in some stages we call Judgment and in others Inference". *Cf.* Mr. Hobhouse's discussion in *The Theory of Knowledge*, pp. 219-24.

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at first sight to follow, and, as we all know, it is held to be so by some logicians of great authority. But even if this is in a sense true, this is not the sense in which I am speaking of the subject in this paper. In that sense, and for all practical logical purposes, the subject cannot be reality as a whole. It can as a rule be at most some part of reality—reality at some particular point.[1] Reality as a whole, though it may perhaps be indirectly the subject, is not the logical subject of the proposition as this is here understood.[2] But is the logical subject necessarily even a part of reality?

Such propositions as

"Had Cæsar not crossed the Rubicon, the course of subsequent history would probably have been materially different," and

"A square circle would have to combine all the properties of the circle with those of the square,"

*are* propositions; and as they can form part of arguments it would appear that they cannot be properly excluded from logic. Yet the former refers to a state of things which, as the very expression shows, did not occur; the latter to an impossible figure and therefore pre-eminently to an unreality. If, therefore, the question of the reality of its subjects is a question for logic at all, it will have to consider the relation of such subjects as these to reality.

But what is the logical subject of such a proposition?

We must begin by distinguishing the logical from the *grammatical* subject, *i.e.*, from the nominative before the verb.[3] In "A square circle," etc., indeed, they appear to

[1] This is pointed out by Mr. Bosanquet, who so strongly urges that the true subject is reality as a whole. See, *e.g.*, his *Logic*, vol. i., p. 80 *sqq.*, *The Essentials of Logic*, p. 108, etc.

[2] That is to say, it is not the subject of every proposition. Of course there are propositions of which Reality as a whole is the subject, and the one to which this is a note is one in point.

I should like to add that I do not think that what is meant is very satisfactorily expressed by saying that Reality as a whole is the *subject* of the proposition. Is not 'This is true in the world of reality' rather a general understanding as to the sense in which our assertions are to be made and taken than a part of the assertion itself? Or if it is to be taken as part of the proposition, tacitly understood, may it not be considered part of the predicate rather than of the subject? In that "continuous affirmation of consciousness" of which Mr. Bosanquet speaks on pp. 40-41 of his *Essentials of Logic* it appears to me that we do not "predicate the whole of Reality of itself," but rather predicate of the objects in question that they, together with others, make up our real world.

[3] That this is what they mean by 'Subject' does not as a rule appear from the definitions of grammarians, but is very evident in their practice. *E.g.*, when Kühner says (*Gr. Gram.* § 413, 3) that the 'subject' of 'Achilles killed Hector' is Achilles, the 'subject' of 'Hector was killed

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coincide. We are there perhaps speaking of 'square circles,' and if so they are the logical subject according to our definition. But what is the logical subject of 'Had Cæsar not crossed the Rubicon,' etc.? Is it 'the course of subsequent history'? If so, subsequent to what? To an event which, in that case, would not have taken place? Or if we mean subsequent to the year 49 B.C., is it the actual course of subsequent history? or an imaginary other course? or what? The logical subject would probably not be the grammatical subject of the antecedent clause, 'Cæsar'. But if we take this antecedent clause by itself as a separate proposition, what is *its* subject? It has been argued that the true subject of the proposition 'Cæsar crossed the Rubicon' is not 'Cæsar' generally, but 'Cæsar crossing the Rubicon'.[1] If so, is the subject of our antecedent proposition 'Cæsar, *not* crossing the Rubicon'?[2] And if so what does this mean? Surely not 'Cæsar at any other period of his life' (*e.g.*, in the Senate at Rome); nor 'Cæsar during the whole of his life, except when he was crossing the Rubicon'. Is it, then, another and imagined Cæsar, precisely like the actual C. Julius Cæsar, except that this one did not cross the Rubicon? Hardly this either.[3]

Obviously, then, the grammatical subject, though it may be, and perhaps usually is, also the logical subject, cannot without more ado be taken to be so; and our first question would therefore be, How can we determine what is the logical subject of a proposition? The quasi-definition with

by Achilles' is Hector; when Buttmann says (*Gr. Gram.* § 129, 16) that in Demosthenes' phrase ἀναγνώσεται ὑμῖν the 'subject' is ὁ ἀναγνώστης understood; when Zumpt says (*Lat. Gram.* § 69, 5, N. 3) that in Cic. *ad Att.* 7, 14, "Tu ipse cum Sexto scire velim quid cogites" the 'subject' is "tu ipse," they are clearly thinking only of the relation of the nominative to the verb. Demosthenes is not speaking about the reader, but about the law; Cicero is not telling Atticus about himself (Atticus), but about his own curiosity; and in Kühner's example, if, as he holds, the meaning is not changed by the change of form of the proposition, the logical subject is not necessarily changed either.

[1] Lotze, *Logik*, § 58.

[2] Lotze himself, indeed, says (§ 40) that the relation affirmed in the affirmative and denied in the corresponding negative proposition is the *same* relation, so that it would appear that the subjects of the two must be the same. But then, according to the theory, it would seem impossible that the negative could ever be true. If 'A is B' means 'the A that is B, is B,' its negative must on these terms always be false, for 'the A that is B, is not B' cannot possibly be true.

[3] I need hardly say that I do not mean that the logical subject of the proposition, "Had Cæsar not crossed the Rubicon," etc., is really any of the various subjects just suggested. I suppose it is probably the gravity or the momentous consequences of Cæsar's act, though without the context it is impossible to say.

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which we began has already furnished us with an answer. We must consider what the proposition is really about—what it is about which the assertion contained in the proposition is made. This will be its subject.

For simplicity let us for the present put on one side our question of the possibility of unreality in the subject and the examples introduced to illustrate it, and let us take some propositions with manifestly real subjects; *e.g.*:—

'A horse is a mammal.'

'Socrates died in the year 399 B.C.'

'A diameter of a circle is a straight line drawn through the centre and terminated both ways by the circumference.'

In such cases as these the grammatical is probably also the logical subject of the proposition. We are making assertions about 'horses,' 'Socrates' and 'diameters of circles' respectively. In the following, *e.g.*:—

'Two straight lines cannot enclose a space';

'A circle may be described from any centre at any distance from that centre';

'Hull lies due north of London,'

the matter becomes more doubtful. Is our assertion, *e.g.*, about two straight lines? or about the relation of any two straight lines to the enclosure of space? or about the nature of the space we have to deal with?—about a circle? or about our assumed right to suppose any circle described which we may require?—about Hull? or about the relative positions of Hull and London? or about the position of either one of these cities (that of the other being supposed known)? or about the direction in which you must travel from London in order to reach Hull? or about what?

In such propositions as:—

'You do not meet a man but frowns';

'Every schoolboy knows that Julius Cæsar was murdered on the Ides of March, 44 B.C.,' etc.,

the logical and the grammatical subjects appear to have altogether parted company. The propounder of the former assertion is not speaking about 'you,' but about something entirely different: the proposition, 'Every schoolboy knows,' etc., is not intended to give us information about schoolboys and would manifestly be absurdly untrue if it were taken as supplying it.

Yet it is obvious that the assertor of the proposition, 'You do not meet a man but frowns,' *might* have intended 'you' to be understood to be the subject of the proposition. He might have intended to say that you have the unfortunate peculi-

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arity that no one meets you without a frown. Indeed it is only by inference, either from the context or from intrinsic probability or from the speaker's known or presumed sentiments or from some other premisses, that we can in such a case tell what such a proposition is really about, *i.e.*, what its logical subject is.

It would seem then that, as indeed we all know, the meaning of a proposition may vary according to its context or according to the intention of the speaker in uttering it, and that, if so, my first reason for preferring the use of the word Proposition to that of Judgment is not so valid as it at first appeared.

To this it may be replied :—

(1) In the first place, that it is at least relatively valid, for that it is only after the assertion *has been made* that any hearer or reader can draw inferences from it or consider what you mean by it at all; only after it has at least been mentally made or suggested (*i.e.*, when it is at least a mental proposition, no longer a judgment in process of formation) that the thinker can himself consider all that it will bind him to, and whether therefore he can and will assert and abide by it or not.

(2) In the second place, that though the context has to show in what sense we mean our proposition to be understood and to guide the reader or hearer as to the inference he ought to draw from our assertion, nevertheless we are formally bound by all that it really implies. The assertor of 'Every schoolboy knows that Julius Cæsar was murdered in 44 B.C.' could not, formally, complain if I draw from it the inference 'Therefore A. B., being a schoolboy, knows it,' and ask him whether he will stand to this conclusion. Yet he will not unjustly be annoyed at a frivolous objection of this kind; and clearly the logical mind is the one that does not bring forward such quibbles but draws from any such assertion the inferences appropriate to the matter in hand.

This, however, leads to two considerations of some importance to the logician :—

1. If many propositions require a reference to context to determine their meaning and the inferences properly to be drawn from them, and if the examples to be found in the text-books are, as of course they must be, given without any context, these latter ought surely to be so chosen that they show their meaning without context as clearly as possible.

The older logicians for the most part endeavoured to secure this by putting their examples into the Subject-Copula-Predicate form (A, E, I, O). Recent logicians are often disposed

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to ridicule this practice; and some (Mr. Bradley, for instance) studiously choose their examples in the slipshod style of ordinary conversation and thought (but of course without the correcting context).[1] I confess that to me this appears to be the reverse of an improvement.

2. The second consideration referred to, naturally presents itself in the form of a question. I said that the logical mind is the mind which draws from assertions the inferences appropriate to the matter in hand (which therefore understands what is said to it in the right sense); and by calling it "logical" we certainly imply that the inferences will be correctly drawn. But if so, what is really the meaning of the adjective "logical"? In other words, What is Logic? If in his investigations a logician considers thought generally, is he acting solely as a logician? If not, in what part of his investigations is he acting as a logician proper, and in what part in some other capacity, *e.g.*, as a psychologist?

To those who themselves possess sufficient knowledge it is, no doubt, very tempting to regard Logic as treating of the entire process of "the mental construction of reality"—to let it embrace the entire theory of general knowledge, including that of all the processes by which it is arrived at on the one hand, and the complete methodology of the sciences on the other. We have high authority for so defining Logic, and certainly I have no quarrel with, but much gratitude to, the authors of the great works with which we are all more or less familiar on that very extensive and fascinating subject. But I cannot help regarding it as

[1] The resulting vagueness is sometimes so great as to render the correctness of the conclusion quite doubtful. Take, for example, "A is due north of B, B due west of C, therefore A is north-west of C" (Bradley, *Logic*, p. 226). This is really one of the more carefully worded of the examples, since by saying "due north," etc., in the premisses Mr. Bradley shows that by "north-west" he does not mean due "north-west" in the conclusion. But what does he mean by it? If anything at all near that point of the compass, the inference is clearly not at all valid. A might just as well be north-by-west or west-by-north, or still nearer either north or west of C. The inference will be valid only if by "north-west" we mean "anywhere west of due north and north of due west". Indeed, in the inexact way in which we usually speak, and in which Mr. Bradley takes every opportunity of showing that he wishes his examples to be understood, we cannot say that even this follows unless we know something of the relative distances of A and C from B. *E.g.*, suppose Grimsby to be, in ordinary parlance, due north of London, and London due west of Greenwich; it would be absurd to say, "Therefore Grimsby is north-west of Greenwich". The course of a conversation would probably leave no doubt as to such points, and we should not be wrong in admitting or rejecting the conclusion; but in an example thus standing by itself there is nothing to show whether it is right or not.

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unfortunate that they should have chosen the word Logic as the name of the entire branch of knowledge of which those works treat. I think it unfortunate not only because it is manifestly undesirable that quite different subjects should be called by the same name, so that that name should always require the addition of some explanatory words to inform us what is really meant by it, but also because if Logic is understood in the extremely wide sense just spoken of it seems to me very difficult if not impossible to draw any clear line between it and some other sciences, particularly Psychology. I may add that the way in which the adjective "logical" is often used by the authors of those of the works above referred to which treat the subject with a view rather to the body of the sciences than to general speculation and metaphysics, appears to me to show that they also usually regard the word "Logic" as really meaning something much narrower than their definitions would lead one to expect, and that such discrepancy is in itself undesirable. It is, of course, impossible that I should adequately discuss the question of the most convenient definition of Logic in the small space here at my disposal. Nevertheless I must say a few words at least on the sense in which I use the word in this paper, since the position occupied in Logic by the proposition and its logical subject will of course depend greatly on the view we take of what Logic is and of what it should attempt to achieve. The object of the following few remarks is, therefore, not to determine where the limits of the science ought to be drawn, and much less to say that logicians have generally agreed in drawing them where I suggest (this would indeed be a hopeless attempt, since there are probably few things as to which logicians are less in accord), but simply to point out where I draw them for the purposes of this paper and to explain why I do so.

What shall be the subject and the limits of a science of course depends on those who frame and develop that science. But it is obviously very desirable that it should have clearly defined limits, and that those limits should be so drawn that the science does not clash with its neighbours. For two distinct sciences, or even two distinct parts of the same science, to endeavour to answer precisely the same question would clearly be not only a waste of time and labour, but also in other ways undesirable. Now it will, I presume, be generally admitted that the consideration of the laws according to which thought naturally proceeds and according to which we find ourselves as a matter of fact thinking now about one thing, now about another—such laws as

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the Laws of Association, the laws by which we expect such phenomena, such conjunctions and sequences as we have once experienced to occur again, etc., etc.—belongs in the first instance to *Psychology*. What, then, is their relation to Logic? The question for Logic with regard to them is, whether they lead to a right or a wrong result. But the laws, as psychological laws, are the same in the one case as in the other. The difference must lie in the conditions. Consequently it would appear that, accepting these laws from Psychology, Logic must have as its own subject the consideration of the conditions, or of the difference between the conditions, which lead respectively to true and false results, and of the grounds on which they are to be taken to do so.

This, however, would still be too wide for a definition. One of the main conditions of the truth of the result is, of course, that the facts with which we start be real facts—that the premisses from which we reason be true. This, however, does not, I conceive, come under the consideration of Logic (or does so only if it becomes a question of the validity of the mental processes by which they were arrived at, in which case we have a preliminary inquiry, in which these premisses are conclusions). It does not come under the consideration of Logic, but belongs either to our ordinary experience or to some one of the special sciences, according to the class of subject considered and the kind of conclusion (its degree of accuracy, etc.) desired.

The question of the truth of the premisses being excluded, the subject of Logic would thus appear to be confined to the *conditions under which the mental processes by which conclusions from given premisses*[1] *are reached, are valid* and the *grounds* of such validity.

Logic, I take it, is not an art—not, for instance, the art of correct thinking or the art of proof—but a science.[2] Nevertheless, like all other sciences, it aims at practical results; and the end of the logician when he draws up rules—his rules of conversion, of syllogistic reasoning, etc.—is, that they should help us in arriving at true conclusions and in avoiding the false.[3] Now if we consider it first in this

[1] Understanding this in a wide sense, to include data of all kinds.

[2] Of course it has often been described as an art. Even Mill sometimes so describes it (*e.g. Exam. of Hamilton's Philos.*, pp. 462, 464, etc.), and no less a recent authority than Prof. Sigwart declares it to be essentially "Kunstlehre des Denkens" (*Logik*, §§ 1 *sqq.*). If it is so, the following remarks apply with still greater force.

[3] I presume that neither Mr. Bradley nor Mr. Bosanquet would deny that such hopes have inspired many who have attempted to improve

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practical aspect, how can Logic set about achieving this object? By pointing out the course which our thoughts should take and supplying the impulse that will carry them along it? No doubt this would be the most effective manner if it were possible; but it very obviously is not so. Before the logician could direct the discoverer's thoughts in this positive manner he would have to know the end to be arrived at himself:[1] and the impulse and mental force, and the laws according to which our thoughts proceed, now in this direction now in that, are phenomena which Psychology has to discover and to describe, but which neither Psychology nor Logic can prescribe. No man ever thought consciously by rule any more than anybody ever made music by considering, while performing, the mathematical relations of the intervals; and the rules furnished by Logic should be looked on, not as injunctions how a man ought to think or as instructions as to the channels into which he should direct his thoughts, but rather as an aid to *controlling* the thoughts when made, or as they rise before the mind, eliminating errors of conception and reasoning (as distinguished from errors of datum), and thus assuring, so far as in him lies, the correctness of the result.

If understood in this manner, what Logic can supply is a restraining rather than a driving force, a drag rather than a spur. It is comparable to the governor rather than to the boiler of the engine, to the signalman and the switchman rather than to the engine-driver on the railway. The free course of our thoughts is constantly being modified, and the thoughts carried in one direction rather than another by collision with other thoughts, and with previously determined results with which they have to be brought into harmony. It is Logic—the logic of practical good sense aided by the logic of science in those who are masters of the latter—which brings about such harmony, and tells us in how far any result arrived at may be trusted, or warns us if something is still wanting without which such trust should not be reposed. This it achieves by means of its great Principles, the Laws of Contradiction and Identity, the Principle of Excluded Middle, the Postulates of the Con-

or to teach logical procedure, including probably the authors of the mnemonic lines, etc., though they hold that such hopes were necessarily doomed to disappointment.

[1] The teacher may be able to direct his pupil's thoughts in this way; but it is only because he knows the result at which he desires him to arrive. In the case of original thought, discovery, etc., any rules to effect this are of course out of the question.

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sistency of things and the Intelligibility of Nature, the Principle of Sufficient Reason, etc., etc.[1] The laws and the rules based thereon, which good sense practically follows of its own accord, are, or should be, drawn up and consolidated by scientific Logic in its great Inductive and Deductive Methods.

The establishment of any belief falls into two parts, which are as a rule closely intertwined but which can be distinguished in theory, *viz.*: (1) the actual *acquisition* of the belief—the movement from suggestion to suggestion, from judgment to judgment, from thought to thought—including the process of search when the belief refers to any matter investigated of set purpose; and (2) its *substantiation* when found. If the line between Logic and other sciences were so drawn that the theory of the former part, which we may here briefly call the *Inference*, should fall wholly outside of Logic, while the theory of the *Proof*—of the establishment or rejection of the belief thus arrived at, or of the suggestion made—should fall, as regards its formal elements, wholly within it, and should form the centre of the subject-matter of the science, Logic would rightly be described as a *science of Proof*—a body of doctrine referring to the validity of mental processes, to the true dependence of one set of propositions or judgments on another or of any mental product on its grounds, and, with a view to this, to the full import of propositions and of their constituent parts. In this way the spheres of Logic and of other sciences, and of Psychology in particular, would be quite distinct. The phenomena presented by Nature (including Mind) and Art are considered generally by our common philosophy of experience and of everyday life and, from the scientific point of view, by the special sciences. Through their means are supplied both the material data and the inferences, which it belongs to and is the business of Philosophy to endeavour to weld into a consistent whole. To Psychology belongs, among other matters, the consideration of the laws according to which the mind does as a matter of fact proceed, both in science and in ordinary thought, from data to inference, from antecedent to consequent. But it does not fall within the province of Psychology to consider either whether the several inferences thus arrived at *are valid*, or how they may be made so. Each science (and psychology among the number) is, no doubt,

[1] How it is possible for any principles or any conceptions to affect the course of our thoughts and the resulting beliefs at all, it is of course for Psychology to consider.

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bound to do this as regards *its own inferences*, but not as regards the general principles on which such validity rests; and, apart from other inconveniences, there would manifestly be a great loss of time and trouble if each science were obliged either to seek such principles for itself or to grope in the dark without them.[1] Here, then, is a place which one would *a priori* expect to see occupied by some independent science, and which, indeed, must necessarily be so occupied in any complete system of sciences. And though a large proportion of those who have taught the science may, no doubt, have desired that it should also do a great deal more, this, if I mistake not, is the place which Logic has always endeavoured to fill, and in which, with all its shortcomings, it has always done good service.

So far as the present paper is concerned the point of the above remarks on the functions of Logic is, that Logic, as here conceived, has nothing to do either with the psychological laws according to which the mind is carried forward and impelled to produce ever fresh results, nor with the relation to reality of the data from which any particular mental process starts, whether these be physical or metaphysical, but deals only with *results*—the validity of the processes by which they have been arrived at, their dependence on the grounds given or mentally to be supplied for them, their compatibility or incompatibility with other results previously arrived at and held to be true, etc. I need hardly add that of course I do not mean by this that the whole of the process which Psychology has to explain must be completed first and then submitted to Logic for verification. On the contrary, Logic, natural or scientific, accompanies, or ought to accompany, the process and should exercise its restraining and correcting influence from the very beginning, and in the thoroughly logical or logically trained mind acts so automatically that the very suggestion of inferences that offend against its canons, of conceptions which contain contradictions, etc., is immediately checked and such suggestions do not come consciously before the mind at all.

This view of Logic is, of course, very much narrower than that which is very extensively held at present, and I confess that it is very much less attractive. I cannot attempt

[1] Of course if no such principles are possible, Logic cannot find or supply them. But if so, it would be well that this should be settled once for all, so that no one should lose valuable time by looking for them in the future. Even so, therefore, the labours of Logic in looking for them would not have been wholly lost, though it would of course incur a considerable responsibility by teaching this negative result.

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further to justify it here, but must ask those who are doing me the honour of listening to this paper to bear in mind that, whether rightly or wrongly, it is from this point of view that it is written. And according to this view it is for Logic to consider the material of proof, to insist that this be given to it in a form in which its import can be tested (*i.e.*, in the form of propositions or of something equivalent to them) and to endeavour to determine the general import of propositions in their various forms.

The above digression appeared to be necessary, but has taken up so much of my space that comparatively little remains for my main subject, to which I now return.

How, then, is Logic, as here conceived, which has to deal with the import of propositions, concerned in the determination of their subject? And first, What, in general, *is* the import of a proposition? The answer is, The complete assertion or assertions which it contains. But then, What is that assertion, or those assertions? This obviously depends partly on the import of the terms, partly on the form of the proposition. Take, *e.g.*, the A form so familiar to the logician, "Every X is Y". If X and Y are concrete terms (each therefore having both a denotation and a connotation) this makes at least the following assertions :—

1. 'Every thing to which the name X is applicable is also a thing to which the name Y is applicable.' (This might be called the *Denotative-denotative* meaning.)

2. 'Every thing to which the name X is applicable has all the attributes connoted by the name Y.' (The *Denotative-connotative* meaning.)

3. 'Wherever (within the universe[1] in question) we have the whole of the attributes connoted by the name X, we have one of the things to which the name Y is applicable.' (The *Connotative-denotative* meaning.)

4. 'Wherever (within the universe in question) we have the whole of the attributes connoted by the name X, we have also (or as a part of them) the whole and each one of the attributes connoted by the name Y.' (The *Connotative-connotative* meaning.)

[1] Here, and elsewhere, I use the word "universe" in the sense in which that term was introduced into Logic by De Morgan—the sense in which I believe it is usually understood by English logicians, *e.g.*, by Jevons (*Pr. of Sc.*, p. 43, and elsewhere), Dr. Venn (see his *Symbolic Logic*, chap. viii., etc.), etc.—not in the sense explained by Mr. Stout in his *Analytic Psychology*, vol. ii., p. 212, where it is equivalent to "what in ordinary language is called a subject or topic". I may mention that I had not seen Mr. Stout's work when this paper was written.

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5. 'Within the universe in question there exists nothing to which the name X is applicable (or which has the whole of the attributes connoted by X) which has not the attributes connoted by Y.' (The Existential meaning.)

And others.[1] Now when we say 'Every X is Y,' we have probably only one such meaning in our mind, and, if we are arguing, it is only in that particular sense that we intend the assertion to enter into the argument. Yet by making the assertion we have really asserted the proposition in *every one* of the above meanings (and also in every other meaning which the proposition may have) and are therefore logically bound to all that follows from it in any one of those meanings. This of course complicates the problem before Logic, which has to consider generally what our assertions bind us to and the conditions under which we are, or are not, justified in making them or in drawing this or that conclusion from them. This complication, however, causes practically little inconvenience, because it is easily seen that everything that follows from the above proposition in any one of the above senses, follows from it also in any of the others, so that it is logically immaterial whether the logician in drawing up his formulæ and in formulating his laws has the proposition before his mind in the one sense or in the other. But observe, it is here taken for granted *that we know what is the subject* (and consequently also what is the predicate) of the proposition. We have taken X to be the subject, Y the predicate; and it is *with this presupposition* that Logic introduces propositions of this form (and similarly of the forms E, I and O) into its formulæ. So soon as there is any doubt on this point, the matter assumes a complication which renders the formulation of any general laws of mutual implication and the drawing up of any kind of reliable formulæ very difficult, if not impossible, and in any case makes the application of them so troublesome that it requires the introduction, say, of a special set of symbols and of processes of calculation which have to be set out on paper (as is the case in Symbolic Logic), and it thus becomes useless for the guidance of thought even in the negative manner already referred to.

[1] Of course there are other meanings; *e.g.*, the familiar ones: 'Possession of the whole of the attributes connoted by X *is a mark* of possession of the attributes connoted by Y'. 'Non-possession of any of the attributes connoted by Y *is a mark* of non-possession of some, at least, of the attributes connoted by X.' 'The X's that are Y are all the X's.' 'That every X is Y is true,' or 'is a fact in the universe,' etc. It is not necessary for my present purpose that I should attempt to make a complete list of such meanings.

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Perhaps a simple general example will bring this out most clearly. Suppose that A connotes the group of attributes $a$, B the group of attributes $\beta$, that not-D connotes absence of at least a part of the group of attributes $\delta$, that ABC not-D[1] connotes the group of attributes $a + \beta + \gamma$ and absence of at least a part of group $\delta$, and so on. Then it is clear that (provided that I know that there are any ABC not-D's in the universe in question) if I assert 'Every ABC not-D is K not-LMN'[2] I am thereby asserting, among other things,—

'Some[3] A's are K' (or 'have the attributes $\kappa$');

'Some A's are not-LN' (or 'have the attributes $\nu$, but not all the attributes $\lambda$');

'Some B's are not L;'

'Some BC's are KM not-L;'

'Some B's that have not the attribute $\delta$ are M,' etc., etc., etc.

All this is very obvious; *i.e.*, it is obvious that in making even so simple an assertion as this we are, in effect, making a great number of different assertions with different subjects and different predicates. But it is as obvious that a formula which should take cognisance of all this—which should show exactly what propositions of this or other kinds are involved in a combination of such propositions as even 'Every ABC is XYZ'—would necessarily be very complicated, and that Logic, which, as practical, aims, not at following thought in all its short cuts, but at giving *simple* formulæ, capable of easy application, is justified in saying, as in effect the older logicians do: 'If you wish Logic to assist you in deciding whether you are justified in drawing a certain conclusion from certain premisses, you must present that conclusion in a form in which there can be no doubt as to what is its subject and what its predicate. If you will then also so state your premisses that that subject, wherever it occurs, is clearly separated (either as subject or as predicate) from the rest of the content of the respective propositions, and similarly the predicate of the desired conclusion wherever it occurs, then,

[1] Or, A not-DBC, or in any other order.

[2] *E.g.*, 'Every rectilineal figure whose internal angles are together equal to two right angles and two, but not all, of whose angles are equal to one another, is a plane, not equilateral but isosceles triangle'. But there is no need to take so complicated an example; for as most concrete names connote a number of positive and negative attributes, 'X is Y' can nearly always be put into many such forms. *E.g.*, 'Every man is mortal' may be read 'Every animal that has human form and reason but not infallibility, is a something that lives for a time, but not for ever'.

[3] Of course in such cases 'Some' means 'Some at least,' not 'Some only'.



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if Logic were perfect, its formulæ ought to be able to tell you whether you are right in drawing your conclusion or not, and in the latter case what is still wanting to enable you to do so. They are at fault if they cannot do this. But if you will not take this trouble, but present your premisses with the subject and predicate of your conclusion all mixed up in them, then you are asking too much in requiring Logic to provide you with a formula which can answer your question.'

It is, perhaps, hardly necessary to say that the thinker does not, as a matter of fact, come to the logician with any such question as is here suggested. The practical difficulties with which the thinker or the discoverer is confronted are seldom, if ever, such as the logician as such could solve; and if he is guilty of a fallacy, which of course is not impossible, he will not be aware of it and therefore will not appeal to the logician to help him out of it. But this no more proves that Logic has been of no use to him and that the labours of the long line of eminent thinkers who have devoted their energies to the theory of Logic, pure and applied, have been of no effect on the thought of the present day, than the fact that the musician does not go for advice to the physicist proves that the mathematical theory of harmony has been without effect on the theory and practice of music. The reproach that theory lags behind and does not assist practice, is not peculiar to Logic. It is the charge so commonly brought against abstract thought of whatever kind that Schiller's "philosopher" really seems to be but little exaggerating the common view when he describes the great achievement of the abstract thinker, be he a Locke or a Descartes, as consisting in showing, after a thing has been successfully accomplished without his aid, that it was not impossible to do it.

To return to our subject: In such a proposition as 'Every X is Y,' X and Y are marked out by the form as subject and predicate respectively, and it is but a small thing for Logic to ask that these only should be treated as subject and predicate and that no change should be made in this respect without a corresponding change in the proposition itself.[1] This, indeed, is so natural a demand that it is usually taken for granted and nothing is said about it. But, as we have already seen, in some other forms the distinction is not so

[1] That if, *e.g.*, X is ABCD, the proposition "Every X is Y" is not, without more ado, to be taken as a proposition about A, or about Y, or about any attribute (*k*) of Y—though of course it may be convenient to *thought* so to take it.

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clear and may be open to question.[1] Logic is right in demanding that in the propositions submitted to it the distinction should be clearly made, even if it should be necessary to *alter the form of the proposition* for this purpose.

This altering of the form of the proposition is, of course, a delicate operation, since the import (so far as the argument is concerned) must not be affected thereby; and if it is by a happy instinct that logicians, from Aristotle onwards, have for the most part considered the concatenation of propositions in the Subject-Copula-Predicate forms (A, E, I and O) only, or in these together with hypothetical propositions in such forms as—

If A is B, it is C;
If A is B, C is D, etc.,

which have for logic special advantages of their own, it is certainly a grave omission on their part not to have given more attention to the relation of these to the precise import of propositions in the various other forms in which they frequently occur and not to have shown how the transformation can be safely effected. My paper is already too long. It is of course out of the question that I should discuss this here. I believe that, though it may probably require what Prof. Wundt calls "the Shifting of the Categories,"[2] any proposition whatever may be put into the Subject-Copula-Predicate form 'A is (or is not) B'[3]—probably with the loss of the greater part if not all of its rhetorical force but without any alteration of its actual import as a link in the chain of the argument in which it occurs, and this is all that Logic need concern itself about. Logic is not Rhetoric, and their ends are not the same.

Before closing I should like still to refer very briefly to two points:—

1. The assertion of the possibility of the transformation of any proposition to the Subject-Copula-Predicate form of

[1] I am very glad to find a reference to this possible uncertainty as to the logical subject in Mr. Hobhouse's *Theory of Knowledge* (p. 156)—the first reference to this that I remember to have met with in any work on Logic. Mr. Stout's interesting remarks (*Analytic Psychology*, vol. ii., pp. 213-14) are of course from a different point of view—the point of view of the psychologist.

[2] "Die kategoriale Verschiebung der Begriffe." See Wundt, *Logik*, vol. i., pp. 107 *sqq.*, p. 142, etc.

[3] It would, indeed, probably not be correct to say that every proposition can be so changed into a single proposition of this form. It may require more than one to express it. But these are details into which I cannot enter here.

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course rests on the assumption that the copula 'is' *does not assert identity in all respects.*

In some respects of course it does so. 'Socrates is mortal' asserts that 'Socrates' and 'one particular mortal being' are numerically and in every way the same object; 'All men are mortal' asserts that the objects composing the first-named class and at least some of those composing the second are numerically and in every way the same objects. Again it asserts that the attributes or properties connoted by the predicate-name are some (at least) of the attributes or properties of the objects denoted by the subject-name. The implication of these kinds of identity does not interfere with the possibility of the transformation referred to, though it may oblige us to interpret the terms 'attribute' or 'property' in a wider sense than is customary. But the possibility of the transformation does rest on the assumption that the proposition 'A (or every A) is B,' as it does not assert (though neither does it deny) that the name A denotes every object denoted by the name B, so also it does not assert (though neither does it deny) that the attributes or properties connoted by the name B are the whole of the attributes or properties of the object or objects denoted by A. That it does neither the one nor the other seems so obvious that I should not refer to this assumption at all were it not for the difficulty which the conception appears sometimes to cause.

I cannot refrain from adding that it would, I think, be by no means an advantage to thought that the connotation and denotation of the subject and predicate of propositions of the A form should always be exactly the same. To reduce all propositions of the form 'X is Y' to 'X that is Y is Y that is X,' is not at all a goal that Logic should strive to reach.

2. Whether or not our propositions assert *reality* or *existence* (in the ordinary sense of those words) depends on the logical subject and on our knowledge of it and of its relation to the particular universe in question.

That this is so comes out clearly when we attempt to convert or infer from propositions with non-existent or impossible subjects, and shows that a word of caution ought to be given with some familiar logical rules. Thus, if our universe is our actual world, we may perhaps say with truth, 'All [or some] witches are old women'. We mean, 'If there are any witches (which we believe not to be the case) they are all (or some of them are) old women'. But we cannot convert and say, 'Some old women are witches,' because in our universe there are old women in existence,

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and we believe that none of them are witches. So we may perhaps say, 'Every circular cube is a plane solid'. If unmeaning, this is not necessarily untrue. But we cannot infer, 'Some cubes are plane [figures]'; 'Some circular [figures] are plane solids,' etc. These subjects exist, and the propositions are untrue. The occurrence in the premisses of a proposition with a non-existent subject may render syllogisms in the Third and Fourth Figures invalid. And so on. Now this danger, so far as it goes, is certainly an additional reason of weight from the point of view of Formal Logic for accurately determining the subject of any proposition which is to be used as a premiss, and for considering its relation to reality whenever there is any opening for doubt.

I have urged that for the purposes of Formal Logic it may be necessary to reduce propositions to the Subject-Copula-Predicate form, or to some other in which the subject is clearly separated from what is said of it by the form of the proposition itself. After what I have already said it will hardly be necessary to add that of course I do not mean that this ought to be done also in ordinary thought or conversation. Here there will probably be no need of this formal safeguard, and in any case the transformation would be impossible. But even in ordinary thought and conversation we ought, if we wish to be logical, always to make it quite clear both to ourselves and to our hearers, what our logical subject really is.

*Note.*—To obviate possible misconception I should like to add here (though I believe it is pretty clearly indicated in the paper itself also) that my contention is, *not* that such uncertainty as to the subject as I have referred to often leads to actual errors of reasoning—there this source of error is usually eliminated by the context or by the general course of the argument—but only that it unduly complicates the problem of Formal Logic, if it does not render its satisfactory solution actually impossible.

I may perhaps also be allowed to add a word on Dr. Hillebrand's Theory (given in his work on *Die neuen Theorien der kategorischen Schlüsse*), on which I would gladly have said something in my paper if it had not been too long even without such an additional discussion. Dr. Hillebrand holds with Brentano and others that, though it is of importance from the point of view of Psychology, for Formal Logic the distinction between the subject and the predicate is irrelevant, and he does away with it, stating his propositions (as is done in Symbolic Logic also) in the existential form, "There is A that is B," or "There is no A that is B," as the case may be. If this, or any such system, is capable of a development that will fully satisfy the requirements of thought, I am of course mistaken in my contention. I cannot of course examine Dr. Hillebrand's theory here; but greatly as I admire the ingenuity with

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which he works it out and with which he develops, *e.g.*, the syllogism with its various moods, etc., and though I am ready to go a long way with him and have derived great assistance from his work, I must confess I do not think that any system which requires that every universal proposition without exception should be stated as a negative could ever assist thought even in that indirect manner which I claim for ordinary Formal Logic.

I may add, with reference to the end of my paper, that according to Dr. Hillebrand's system every particular proposition positively asserts existence. Therefore, though we can say, *e.g.*, 'All witches are women' ( = 'There are no witches that are not women'), we cannot say, in his system, 'Some witches (*e.g.*, those that met Macbeth) are women'; for this would have to be put, 'There are (or exist) witches that are women,' and unless we expressly state that our "universe" is to include the realm of fancy or of superstition, this proposition is untrue.

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# IV.—THE DIALECTICAL METHOD. (I.)

By Prof. E. B. McGilvary.

In this paper I shall consider, as far as I may, the objections that have been raised against the method of the Hegelian dialectic, with a view to determine what is the real nature of that method. And in doing this I shall avail myself, in great part, of Mr. McTaggart's chapter on the development of the method of the dialectic,[1] as a convenient and accessible statement of the views against which I wish to protest as being unhegelian. It matters not that he presents his views as a sympathiser with Hegel rather than as an opponent. The views call for such a discussion as will bear equally against an adverse school of criticism, which has flourished upon a misunderstanding of the method it criticises. Even where Mr. McTaggart's contentions are fire-new, as in his claim that the negative is not essential to the movement of the dialectic, what he says will make a good basis upon which to treat the subject of the negative in its relation to the dialectic, a favourite subject of the critics.

If there is any work, the results of which depend entirely upon *the integrity of the method* employed, that work is Hegel's *Logic*. Indeed, the method is more important and more secure than the results in their detail, and no one knew this better than its author. In the Introduction to his *Greater Logic*, he calls the method "the soul of the structure,"[2] and says of it: "Although I could not possibly

[1] *Studies in the Hegelian Dialectic*, by John McTaggart Ellis McTaggart, M.A., Fellow of Trinity College, Cambridge. Cambridge: at the University Press, 1896. Chapter IV. Part of the work appeared in a series of articles in Mind (New Series, Nos. 1, 2, 8, and 10).

[2] Hegel's *Wissenschaft der Logik*, i., 42 (45). In my reference to this work I follow the pagination of the reissue of 1841, from the press of Duncker & Humblot, Berlin; giving in parenthesis the paging of the first issue. The three volumes of the *Logic* form the third, fourth and fifth volumes of the *Complete Works*. I use the *Greater Logic* rather than the *Lesser*, partly because it is a fuller treatment of the whole

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think that the method which I have pursued—or rather which this system pursues of itself—might not be capable of much perfecting, of much thorough revising in its details, I know, nevertheless, that it is the only true method. This is clear of itself already from the fact that it is nowise distinct from its object and content; for it is the content in itself, it is *the dialectic that the content has within it*, which moves the content forward. It is clear that no treatment can pass for scientific that does not go the gait of this method and conform to its simple rhythm, for it is the gait of the subject-matter itself."[1]

Against this, Mr. McTaggart claims that the method is not uniform, but is constantly changing, and that the change is of two kinds: first, from external reflexion, which alone is at work in the categories of Being, through various intermediate forms, till at the last inner reflexion gets in its hand; secondly, that the negative is not an essential element in the method, but functions only in its earlier stages and gradually disappears altogether from the scene of action.

I. I shall begin with the first point made, namely, that external reflexion is the power that moves the machinery in the categories of Being as over against those of Essence and of Conception. His statement is this: "In Being each category appears, taken by itself, to be permanent and exclusive of all others, and to have no principle of transition in it. It is only outside reflexion which examines and breaks down this pretence of stability, and shows us that the dialectic process is inevitable. In Essence, however, each category by its own import refers to that which follows it, and the transition is seen to be inherent in its nature. But it is still felt to be, as it were, only an external effect of that nature. The categories have still an inner nature, as contrasted with the outer relations which they have with the other categories. So far as they have this inner nature, they are still conceived as independent and self-centred. But with the passage into the notion things alter; that passage 'is the very hardest, because it proposes that independent actuality shall be thought as having all its substantiality in the passing over and identity with the other

subject; partly because it is not so familiar to English readers, and thus will throw new light on the points discussed; and partly because the first volume of the *Greater Logic*, which concerns us most especially in the present paper, *is the latest work from Hegel's pen*, and therefore represents his matured views better than the *Logic* of the *Encyclopædia*.

[1] I., 39 (41, 42).

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independent actuality'.[1] Not only is the transition now necessary to the categories, but the transition *is* the categories. The reality in any finite category, in this stage, consists only in its summing up those which went before, and in leading on to those which come after."[2]

Now, before we can satisfactorily enter upon a discussion of this point, it will be necessary to make some preliminary remarks about the *double aspect* in which the categories appear in the *Logic*. The primary purpose of the *Logic* is to show how even the most abstract and seemingly independent and inorganic category contains within itself the life of the whole system of all-inclusive Thought; and how this life, if allowed full play, will develop that barren category through all the stages of thought up to the highest. Now, as this category grows under our observation, we see it taking the form of other categories familiar to us. Thus in the very development of the lowest category we reach other categories whose evolution it is the business of logic to display. Hence it is not necessary to give a separate genealogical table to each category; but the pedigree of one category will be the pedigree of many—but, from one point of view,[3] *not the pedigree of all.* And this is an important point. There are categories that, in the form in which we ordinarily use them, or rather in which we *think* we use them, are not to be found in the direct line of march from pure Being towards the goal of the Absolute Idea. But though not on the line of march, they are near by, and it takes only a little flank movement to sweep them into it. But this flank movement arrests the procession "for the subjective spirit," as Hegel would say. It *appears as if* there were a zigzag movement with constant stops, and not a "never-halting march".[4]

I may illustrate what I mean by borrowing and developing the metaphor Hegel uses for representing the absolute unity of thought. This unity is a circle; thought's movement is in an orbit that returns upon itself. But suppose that one has not yet discovered the orbit, does not even know whether there be any orbit or any movement; suppose one loses one's perspective, and, from any position, views two points in the circumference of the circle. These points

[1] "*Enc.*, Section 159."

[2] *Op. cit.*, pp. 123, 124.

[3] I wish to call especial attention to this reservation. For, from another point of view, it *is* the pedigree of all.

[4] I., 39 (41): "In unaufhaltsamem . . . Gange".

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may appear to him *side by side*, rather than *one in advance of the other*. The more advanced point is then viewed as if it were collateral with the nearer; hence when a movement is discovered and is supposed to be in a bee-line from the point of observation through one of these points on to the infinite, it will seem as though a digression must be made from this line in order to catch the other point into the movement. In the same way a higher category is viewed as if it were co-ordinate with a lower one; so viewed, it will not have all the characteristics it should have, else it would not appear co-ordinate. In such a case, it is clear that when the lower category has advanced to the higher, it will not have passed through the form the higher takes *when reduced to a lower plane*. Now, as ordinary thought is abstract and thinks its categories in their abstractness, and not in their concreteness, it will be necessary, when dialectic comes alongside of a category in its abstract form, to show how this abstract category develops itself into the same concrete fulness into which its seeming co-ordinate was developed. To change the figure, the stone which, in the structure of speculative logic, has its significance only as resting on the lower stones and furnishing a basis for the higher, is by the common thinker torn out of its place and used as an independent unit. It is the business of the speculative builder, when he reaches this stone in its structural place, to show that even when lying apart it bears traces upon itself that cannot fail to indicate that such isolation is not proper to it, but that it belongs to an architectural system; and to show that these traces also indicate *where* it belongs in that system.

But even this is not all. Common understanding has its own ways of artificially grouping these abstract categories. One way, and a very favourite way, especially in dealing with the categories that dialectic reaches first, is to pair them off, and to set each member of a pair over against the other, as of equal rank, but mutually incompatible. Thus from the abstract point of view, these paired-off categories are contradictory to each other; and what dialectic does, appears to be a reconciling of these contradictions. When Hegel, therefore, speaks of any category "as such," he means that category regarded as the "unspeculative" thinker regards it; that is, as leading to no dialectical result, and even as independent of the process by which speculative logic has reached it. And when he speaks of its "opposite," he means, in the lower categories, what the abstract thinker regards as its irreconcilable contradictory; and when he speaks of "reconciling" these contradictories, he is merely using language that repre-

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sents the view of abstract thought. Dialectic, however, does not recognise the claims of the opposites to be incompatible, and hence need perform no atoning work. To put this in technical Hegelian language, it is merely *external reflexion* that regards the speculative logic as reconciling contradictories. Logic itself, in performing this operation which an onlooker calls a reconciliation, is not conscious of being engaged in a ministry of reconciliation, but is only conscious of advancing from a lower to a higher category.

What I have said above may easily be misunderstood; for it may seem to imply that the higher category is not a unity of *opposites*. It *is* such a unity, but not of *contradictory* opposites, or of *contrary* opposites, *as these terms are used in the traditional logic;* and it is this fact that I have wished to make prominent, and I may be thought to have carried the emphasis on to the point of danger. To put it all in one sentence, logic takes what appear to be contradictories, and does what appears to be a reconciling of them; but succeeds in so doing, merely because they are not *such* contradictories as cannot be thought together in one thought.

The best proof of the correctness of this exposition is the light that it throws upon many a dark passage in Hegel's *Logic*. If we bear in mind the double aspect of the negative categories, we shall be able to solve riddles that otherwise would remain insoluble, except by the Gordian-knot method to which Mr. McTaggart has resorted. I shall quote one passage of the many that find their explanation only in what has just been said. In the *Greater Logic*, under the section, *Determinate Being as Such*, there is a sub-section, *Determinate Being in General*. Here we read: "Determinate Being arises out of Becoming. Determinate Being is the simple unity of Being and Naught. Because of this simplicity, it has the form of an *immediate*. Its mediation, Becoming, lies behind it, has been sublated. Determinate Being, therefore, appears as a primal datum from which we take our start."[1] Here it is evident that Hegel is not concerned with determinate Being *as it has been mediated*—that is, as it appears to the speculative thinker—but as it appears *apart from* its mediation. He seems to be giving an answer, not to the question how this category has arisen in the course of the dialectical process, but to the question how it comes that, if it has thus arisen, it appears *un*mediated. The answer is that the process lies behind the category, and the unspeculative thinker does not look behind for it, but looks only at

[1] I., 106 and 107 (112 and 113).

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what lies immediately before him. It is true that there is some excuse for such neglect on the part of the thinker; for, in one sense, this category, as well as every other, is immediate even from the point of view of the speculative thinker; for immediacy is not a characteristic on the same level with mediation and antagonistic to it. Like all true dialectical negatives, it is higher than that which it negates, containing mediateness as one of its moments. In this sense immediacy is self-mediation; and it is in this sense that determinate Being is for the speculative thinker immediate; for its presuppositions, its moments, its media are *in* it and not *behind* it. This is one of the things that Hegel means when he says that in this category mediation is sublated; for to sublate means both to cancel and to retain. Mediation is cancelled, for this category is immediate; and it is retained, for this category is, from a higher point of view, self-mediated. But a full insight into this truth does not yet appear, and it would be anticipating a later result of the dialectic to bring forth this truth at this stage. This revelation will be made first by the category of Being-for-self. Hence the real purpose of introducing determinate Being as *immediate* and of saying that it appears as a new starting-point, is to account for the apparent immediacy of the category *as it is ordinarily regarded.*

We are now ready to return to the discussion upon which we entered on the second page of this paper, and to examine the claim made by Mr. McTaggart, that in the categories of Being the dialectic advance is made possible only by outer reflexion. And the first thing to do is to determine the meaning of the expression "outer reflexion". It is a phrase constantly used by Hegel in his *Logic*, and fully explained in the Second Book;[1] but it will not be necessary to quote and to explain this difficult passage, for I do not intend to give an outline of Hegel's doctrine of reflexion, but merely to touch upon such features of this doctrine, or rather upon such corollaries from it, as bear upon our present purpose. It does not concern us to investigate the true dialectical relation between the different kinds of reflexion, but merely to ascertain what Hegel means when he denies that outer reflexion is the motive power in the earlier categories, and what Mr. McTaggart presumably means when he asserts that it is the only means used to secure the dialectical advance in these categories.

Outer reflexion is a way of regarding two categories as

[1] II., 19 (19), *seq.*

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having no genetic relation to each other, but as merely coexisting in the thinker's mind independently of each other. This thinker, as a third party, compares the categories and passes judgment upon them as to resemblance or difference. This judgment does not affect the true inner nature of the categories, but merely records the impression they make on an onlooker. For a corroboration of this description of the function of outer reflexion, I shall quote two passages from the First Book of the *Greater Logic;* for it is this book that deals with the categories now in question. In one passage Hegel says: "This sameness of the determinations" (of Something and Other) "is only a matter of outer reflexion, of comparison of the two".[1] Here we see an identification of outer reflexion and comparison. The second passage is more explicit. "We have still," says he, "to mention particularly the word *unity*, which is, if I may say so, very infelicitous. It designates, even more than *identity* does, a subjective reflexion; for it is for the most part considered as a relation that arises from *comparison*, from external reflexion. In as far as this faculty finds the same characteristic in two *different objects*, a unity is present in such wise that, withal, there is also presupposed the complete *indifference* to this unity on the part of the objects themselves that are compared. The act of comparing, therefore, and the unity do not concern the objects themselves at all, but are an activity and a determination external to them."[2] External or outer reflexion, then, brings together two categories considered as mutually independent, and establishes a relation between them for its own convenience; but this relation is not regarded as in any way arising from their true inner nature, or as in any way affecting that nature. *Inner reflexion* is opposed to this outer reflexion.[3] What this inner reflexion is can be seen by studying the passage in the Introduction to the *Greater Logic*, where Hegel says that "the divisions and headings of the books, sections and chapters . . . do not belong to the contents and body of the science, but are arrangements of outer reflexion. . . . They are meant to have no other significance than that of a table of contents. But, besides, the *necessity* of the connexion" (of the categories thus brought together externally) "and the *immanent origin* of the distinctions are found in the treatment of the subject-matter itself; for they are involved in the progressive self-determination of the conception. That by which the conception accomplishes its self-advance-

[1] I., 117 (123). [2] I., 84 and 85 (90). [3] I., 94 (100).

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ment is the aforesaid *negative*, that it has in it. This constitutes the truly dialectical feature. . . . Ordinarily the dialectic is regarded as an external and negative activity, that does not belong to the subject-matter itself. This activity is supposed to have its source in mere vain caprice, acting as a subjective impulse to take what is firm and true and make it totter and fall to pieces."[1] Here the contrast between outer and inner reflexion is clearly stated, although inner reflexion is not mentioned by name. While in outer reflexion the relation between two categories is established, not by the categories themselves, but by an *outsider*, in inner reflexion one category is seen to rise inevitably out of the other by immanent necessity, by reason of the negative that resides in the other. "Outside reflexion" is therefore *subjective*, and is contingent on the attitude of an outsider. Inner reflexion is *objective*, and is necessary from the very inner constitution of the object.

With the *caveat* already entered, that I am here treating of outer and of inner reflexion only in their bearing upon my present purpose, and not in their dialectical relations to each other, I am now ready to examine Mr. McTaggart's assertion that, in the categories of Being, "it is only outside reflexion which . . . shows us that the dialectical process is inevitable". But as he maintains that the process throughout Being is not uniform, so he would perhaps say that the kind of reflexion involved in the advance changes with the advance, and that if we want a typical instance of the enginery used in Being, we must take up the very first triad. So be it. If we can prove that the advance here is not due to outer reflexion, *a fortiori* we may conclude that *nowhere* is it due to outer reflexion.

Hegel himself realises the difficulty of getting a start. This difficulty lies in the fact that we must begin with an immediate category, with one that has not arisen from any other; for if it has so arisen it is no longer the first category, but its source is a category prior to it. But any immediate category must be simple; it may have no moments or constitutive factors; else it would not be immediate, but would be mediated by these moments.[2] But if it has no moments it would seem as if it must be a dead self-identity; and any progress from the category could not therefore be ac-

[1] I., 39-41 (42 and 48).

[2] I have discussed this point quite at length in an article on "The Presupposition Question in Hegel's Logic" in the *Philosophical Review*, September, 1897, pp. 512 *seq.*

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complished by any indwelling motive power, but must be due to power from some external source. The advance is forced upon it from outside and is in no sense its own act.

This, then, is the apparent dilemma that Hegel had to face: Either there are moments immanent in the first category or there are none. If there are, then the first category is *not* the first category. If there are none, then the movement must be due to *external* reflexion, and is not a necessary logical movement at all. Hegel, however, evidently believed that this dilemma was more apparent than real; for on the very page of his *Greater Logic* where he calls attention to the fact that the transition in the first triad appears different from the subsequent transitions[1] he states that inner reflexion is at work here as well as outer reflexion; and we shall soon see that inner reflexion is the true organon of the dialectical movement, and that outer reflexion is appealed to for the reason that we are dealing with categories appearing in a form not amenable to dialectic, because not capable of being thought. As they are not thought-determinations at all when appearing in this form, but are mere make-believes, their spurious character must be shown by the faculty of make-believe, that is, by external reflexion. Even the very way in which the two kinds of reflexion are spoken of here, shows which is the active power. Hegel is saying to his unspeculative opponent, who wants to test everything by outer reflexion: "Your own outer reflexion, as well as the inner reflexion proper to logic, sets down the indefiniteness of pure Being as equal to Naught, and declares it to be a mere creation of thought, a nothing".[2] Thus we see that, in the very first triad, he shows, in the most unmistakable way, his belief that inner reflexion is the vehicle of progress.

Let us now see whether we can discover how he justifies to himself such an escape from the apparent dilemma that confronts him. His statement of the difference which appears between the transition from the first to the second category, and all the later transitions, is this: "In the pure reflexion of the beginning, such as is made in this Logic with Being as such, the transition is still hidden. Because Being is only posited as immediate, Naught breaks forth into view in it only immediately. But all the follow-

I., 94 (100).

[2] *Ibid.*, "Diese Unbestimmtheit oder abstracte Negation, welche so das Seyn an ihm selbst hat, ist es, was die äussere wie die innere Reflexion ausspricht, indem sie es dem Nichts gleich setzt".

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ing categories, *e.g.*, determinate Being, are more concrete" (*i.e.*, complex, made up of factors). "There has already been *explicitly posited* in them the element that contains and produces the contradictions of those abstractions, and therefore contains and produces their transition. In Being as simple and immediate, the recollection that it is the result of complete abstraction and thus is already abstract negativity or Naught, has been laid aside before entering upon our science. But in the course of the science, expressly from Essence onward, that one-sided *immediacy* will be shown to be mediated; for there Being appears as *Existence*,[1] and the mediating factor of this Being, the Ground, is *explicitly posited*."[2]

Again in another place he says: "We may still make another remark about the character of the transition of Being and Naught into each other, namely, that this transition is to be conceived without the help of any further categories of reflexion. It is immediate and entirely abstract, because of the abstraction of the transitive moments, that is, because there has not been explicitly posited in either of these moments the determinateness of the other, by means of which the transition could be effected. Naught is not yet *posited* in Being, although Being is *essentially* Naught, and *vice versâ*. Hence it is not permissible to apply here principles of mediation which are further determined, and to conceive of Being and Naught as in some essential relation (Verhältniss)—the transition is not as yet an essential relation. It is thus not proper to say: 'Naught is the *ground* of Being, or Being is the *ground* of Naught'; or to say, 'Naught is the *cause* of Being, and so forth'; or again to say: 'There can be transition into Naught only *under the condition* that something *is*, or into Being only *under the condition* of Non-Being'. The kind of relation (Beziehung) cannot be further determined without further determining at the same time the related sides. The nexus of Ground and Consequence, for instance, no longer has for its connected sides mere Being and Naught, but it has" (as one side) "expressly Being that is Ground, and" (as the other side) "something which is indeed only posited, not independent, but something which is not abstract Naught,"[3] because abstract Naught *is* independent.

[1] Here let the reader bear in mind the etymology of this word, *existentia*, a standing forth *out of* something as its ground. It is Being in an *essential relation*.

[2] I., 94 and 95 (100).

[3] I., 99 and 100 (105 and 106).

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And once again, at the end of the completed work, where he reviews the whole dialectical procedure in the light of the final result, he says: "The beginning has, accordingly, for this method no other characterisation than that it is the simple and universal. . . . The universal, however, in the absolute method, is not regarded as a mere abstract, but as the objective universal, that is, as that which *of itself* (an sich) *is the concrete totality*, but a totality not yet explicitly *posited*, not yet *for itself*" (*i.e.*, not yet explicitly recognised). "Even the abstract universal as such is in its concept, that is, considered in its truth, not merely the *simple;* but as *abstract* it is already *explicitly posited* as infected with *negation*. There is, therefore, whether in reality or in thought, nothing so simple and so abstract as one usually supposes. Such a simple is a mere *make-believe*, which has its ground only in the unconsciousness of what is in fact present. The initial category has been previously characterised as the immediate; this *immediacy of the universal* is the very same thing that is here expressed as that which is *of itself*, without being *for itself*. . . . The concrete totality which makes the beginning has, as such, in itself (in ihr selbst) the beginning of the advance and of the development. It is, as concrete, *possessed of distinctions within itself* (in sich unterschieden). Because of its *first immediacy*, however, the first distinct elements are at first *different*. However, the immediate, as self-referred universality, as subject, is also the *unity* of these different elements. This reflexion is the first stage of the advance, the emergence of *difference, judgment*,[1] *determination*. The essential thing is that the absolute method finds and recognises the determination of the universal in the universal itself. The finite knowledge of the understanding proceeds, in the act of determination, in the following way: what it laid aside in the creation of the universal by abstraction, it takes up again from the concrete in just as external a manner. On the contrary, the absolute method does not conduct itself as external reflexion, but gets the determinate out of the object itself, seeing that the method is the very immanent principle and soul of the object."[2]

I have made these many long quotations because the

[1] Hegel's use of "Urtheil" is peculiar, and, for the beginner, is puzzling. He takes it in the sense of a *self-originated diremption* of a concept; and it should, perhaps, be so translated here.

[2] III., 323-326 (333-335), quoted, as the asterisks show, with large omissions.



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point they are meant to support is so important, and that point is this. Although the first category appears as simple and abstract, it is not so in *reality*, and the negation which seems to stand beside it as a mere indifferent neighbour is, in fact, "bone of its bone and flesh of its flesh," an Eve created out of the rib of Adam. But this immanent origin does not make itself manifest in the beginning; or, to use Hegel's own language just quoted, "in the pure reflexion of the beginning the transition is still hidden". At that stage, then, all that one can say is, that "Naught breaks forth into view in Being only immediately". There seems, as yet, to be no mediation for it on the part either of Being or of some third and external agent. We are not yet in a position to say that the emergence of the category Naught is due either to outer or to inner reflexion.[1] Just as the first category is taken in its immediacy, so the second is, at this point, to be considered as immediate. But just as further on we shall see that our first category is not immediate to the exclusion of mediation, but is mediated and *self*-mediated, so we shall see that the movement from the first category, which surprises us now because we cannot see any mediation for it, is mediated by the very moments which we shall find to mediate Being. As soon as Being shows itself up as not simple but complex, the apparently immediate emergence of the thought of Naught upon the thought of Being shows itself to be brought about by the originally hidden, but actually present, complex factors of Being. The transition is, then, really made by virtue of the negative that lurks unseen in pure Being; but because the negative is at present in hiding, the act of transition is also hidden.

There are thus three different kinds of reflexion that may deal with the relation existing between the categories of the first triad—*pure* reflexion, *external* reflexion and *internal* reflexion. Let us now proceed to see in detail how each kind of reflexion will exhibit the relation and how Hegel expresses the result obtained by each.

1. *Pure* reflexion puts the relation thus: "Because Being is only posited as immediate, Naught breaks forth into view in it only immediately. The transition is as yet hidden." This is Hegel's own way of representing the point of view of

[1] It is this inability to say anything as yet about the mediation of Naught, that makes Hegel call the reflexion at this stage "*pure* reflexion" (*In der reinen Reflexion des Anfangs*, i., 94 (100)). "Pure" here means two things. It means "not *externally* mediated," and also "*apparently not mediated at all*". It has the same meanings when used with Being and Naught, as will appear presently.

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pure reflexion.[1] To express the same idea more fully, we should say that the thought (category) of Being can never be thought alone; but in thinking it we discover that we are always at the same time thinking the thought (category) of Naught. Neither Being alone, nor Naught alone, ever exhausts the content of the thought that thinks either; but both must be thought together in one synthetic thought. The conception of Naught is thus to be perceived in the conception of Being.[2] In the concept of Being, in the thought that clutches it, there is also present, clutched in the very same grip, another element, namely Naught. This is what Hegel means in the passage quoted above,[3] when he says: "Even the abstract universal as such is, in its concept, that is, considered in its truth, not merely the simple; but, as *abstract*, it is already *posited* as infected with *negation*".

2. *External* reflexion has a different way of setting forth the relation between Being and Naught, and, as we should expect, it is a very shallow and superficial way. Pure reflexion is the immediate act of the infant logic; external reflexion is the self-confident, but trivial, worthless act of the youthful logic, which knows only the outside appearance of things, but thinks it "knows it all". Being an act of comparison, external reflexion must have some objects given to it, and is merely concerned with the resemblance or the difference of these objects as they appear to the subject who reflects only upon the surface of them. In the present instance, before external reflexion can act, it must have both Being and Naught come before it, and then it must compare them. These conditions are met in Hegel's treatment of these categories in the text of his *Greater Logic*, where he says: "*Being, pure Being*—without any further determination. In its undetermined immediacy, it is only like itself nor is it unlike anything else; it has no difference within itself, nor any as against what is without. If any determination or contents were distinguished within it, or were made the means of setting it down as distinct from something else, it would not be maintained in its purity. It is pure indeterminateness and vacuity. There is *nothing* to be perceived in it, if we can here speak of perceiving; or rather it is only this pure, empty perceiving itself. Just as little is anything to be thought in it: or rather it is likewise only this empty

[1] I., 94 (100).

[2] I., 73 (78): "Es ist nichts in ihm anzuschauen". But see below.

[3] P. 65 above.

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thought. Being, the undetermined immediate, is in fact *Naught*, and nothing more or less than Naught." [1]

Here we see that after Hegel has defined Being, he tells us that in this category we see *nothing*. This may be taken to mean one of two things. One meaning may be that which we have already indicated in discussing the point of view of pure reflexion: [2] "In the thought that thinks the category of pure Being, we perceive besides the category of Naught". If this were the correct paraphrase we should expect "Nichts" and not "nichts," for elsewhere Hegel always capitalises his categories; here both in the edition of 1812 and in the two issues of the second edition, the word is not capitalised. We may conclude that this is not the meaning of the passage, and we are then forced to the alternative that Hegel's thought is this: "In such an undetermined perception or thought as we have in pure Being, there is *not anything* to be seen or thought. Indeed we have a mere *objectless* perception or thought; and just such a *lack* of object for perception or thought is what we mean by *Naught*. Hence the category of undetermined Being is, in fact, exactly the category of undetermined Naught, no more, no less."

If this is the line of thought, as it seems to be, it is clear that Hegel could never have said that the category of pure Being, so defined, was the category of pure Naught, unless the latter category with its meaning were already *independently* in his mind, waiting to be compared with the former. For Hegel has just said that *of itself pure Being has no resemblances*. The recognition, therefore, of any likeness to something else, or of any identity with something else, cannot have been forced upon him by the category itself that is now the object of thought; but it must be the result of an external reflexion on his part, seeing that external reflexion differs from the internal reflexion of the absolute method just in this, that it does not obtain its result by a process that the *object* of thought performs. But if the identification of Being and Naught has been accomplished by external reflexion, then the category of Naught does not arise dialectically out of the category of Being, but is merely pronounced identical with that category by an external arbiter who decides nothing on its intrinsic merits.

That the course of thought in this passage is that of external reflexion is further shown in the next paragraph, where Hegel proceeds to justify the identification of Being and Naught by rehearsing fully the definition of Naught, and by

[1] I., 72 and 73 (77 and 78). [2] P. 67 above.

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showing that it is exactly the same as that of pure Being. "*Naught, pure Naught;* it is simple likeness to self, complete vacuity, absence of determinateness and contents, lack of distinctions within itself. In so far as perception or thought may be here mentioned, it is generally considered a distinction whether something or *nothing* be perceived or thought. To perceive or to think nothing, therefore, has a meaning; the two" (*i.e.*, something and nothing) "are distinct; hence Naught *is* (exists) in our perception or thought; or rather it is empty perception and thought itself, and is the same empty perception or thought as pure Being. Naught is therefore the same determination, or rather lack of determination, and hence altogether the same thing, that pure Being is."[1] Here it is evident that Hegel is merely comparing, point by point, the two categories, and as a result pronounces a judgment of identity between them. In short, *he is simply engaging in external reflexion.* But besides identifying the two categories, he also remarks upon a *distinction* which is commonly held to exist between the no categories. It must, however, be noticed that he here offers proof of the validity of this distinction. He merely appeals to current opinion; such an appeal surely is not a dialectical process.

It seems to me that one cannot escape the conviction that in the two paragraphs we have here examined, the procedure is one of external reflexion, and not a dialectical procedure by internal reflexion. To repeat what has been said, comparison of two categories, which of themselves do not prompt to any such comparison, leads the author to say that they are identical; current opinion as to their distinctness leads him to animadvert upon this distinction. It should be observed, however, that from such an identity as has been established, he has no right to say that Being and Naught are unseparated and inseparable, and that each vanishes in the other, and that the truth is neither the one nor the other, but the effected transition of the one into the other, all of which he does say in the following paragraph—he has no right to say this, unless he merely means that the psychological association in the thinker's mind between Naught and the definition of Being, and between Being and the definition of Naught, is so strong that, when he thinks of the definition of Being, the thought of Naught arises inevitably by spontaneous associative processes, and *vice versâ.*

The conclusion of this examination, therefore, is that in

[1] I., 73 (78).

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Hegel's *Greater Logic* the whole of the text that treats of the categories, Being and Naught, so far as the identification and the distinction of the two categories go, is concerned with exhibiting the work of external reflexion. Now the question arises, whether these paragraphs contain the only representation given by Hegel of the relation between these categories. If so, his case is hopeless. He is unmistakably convicted of using in the dialectic an instrument that he has in the most explicit terms declared to be unavailable for the purpose; and the unity that is brought about between Being and Naught is as blank a self-identity as was either pure Being or pure Naught. *There is no movement.* His thought is as changeless as the Brahman's, who "year in and year out gazes at the tip of his own nose and mutters 'Om, Om, Om' to himself or else keeps silent".[1] But did Hegel mean to palm off this paralysis of thought, this movelessness of external reflexion, as a genuine dialectical movement of vital inner reflexion? Are we forced to the alternative of saying, either that he himself was deceived in the matter, or else that he tried to deceive others? Surely not, when in the very first paragraph of his first remark[2] on this passage he tells us that in pure Naught he is conceiving *only the abstract negation*, and of course we may conclude from the distinction he is constantly making between abstract negation and dialectical negation that he is *not* dealing with the latter. Indeed, he tells us expressly that his purpose is not "to deal with the form of the opposition" (between Being and Naught) "that is, at the same time, with the form of the *relation* between them, but with abstract, immediate negation, with Naught purely independent, with unrelated denial—which, if one would, one could express by bare *not*". If it had been his purpose to exhibit the second category in its *dialectical* form and in its dialectical relation, it would have been proper to substitute Non-Being for Naught, and in such a category all the dialectical characteristics of the negative would have manifested themselves. "For in *Non-Being* the relation to *Being* is contained; it is both Being and the negation of Being expressed in *one* word; Naught, as it is in Becoming." He thus disavows, in as clear and unmistakable terms as language can provide, any attempt to exhibit a dialectical movement in what he has said about the identity and about the distinctness of Being and Naught, when treating those categories in their purity.

[1] I., 92 (97). [2] I., 74 (79).

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# V.—KANT'S DOCTRINE OF TIME AND SPACE.

By James H. Hyslop.

The recent publication of *Lose Blätter aus Kant's Nachlass* with evidences in them of the development of Kant's philosophy and of fluctuating convictions on certain fundamental problems in it, has suggested some remarks on passages in the *Critique* itself which point in the same direction, or at least may either increase or remove the confusions prevailing in some quarters about its doctrine. It is proverbial that the *Critique* is patchy and mosaic, but the reverence for Kant's name and influence often blinds us to matters of much interest in the system, while that side of his doctrine which is unequivocally stated, or supposed to be unequivocally stated, overshadows statements and conceptions which, if true, would introduce a modification of his philosophy as usually understood, that might satisfy an ineradicable instinct of the human mind without in the least impairing the legitimate claims of idealism. What I refer to can best be explained by stating my experience when attempting to make Kant's theory of space clear to students. It is perhaps a universal experience.

But before stating this experience it is imperative that I define the limits of the discussion to be here undertaken. I do not intend to recanvass the whole question of Kant's doctrine of space and time, nor exactly to thresh old straw, though I may come perilously near doing so. I wish to confine some criticism to a number of statements by Kant which are unquestionably somewhat anomalous, at least in mode of expression. It would require too much space to examine his theory of space on its merits, or in terms of a phraseology less open to doubtful interpretation logically and grammatically than those cases to which I wish to call attention, and which by their very exceptional character tend either to show greater confusion in a doctrine commonly supposed to be clear, or to force upon us an interpretation that might bring transcendental idealism nearer to the

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doctrine of Reid and Hamilton than is usually suspected. Hence I shall give no time to a critical study of passages when the phraseology does not excite suspicion. I shall simply assume that they are easily reconcilable with Kant's evidently intended meaning when at least emphasising the ideality of time and space, and proceed to consider such as are at least verbally calculated to arouse interest. There are innumerable problems and difficulties in the Kantian terminology which cannot be fully discussed here, which yet have a bearing upon the question raised in the passages referred to below. But these can only serve as pockets into which we may throw possible conceptions suggested by the special anomalies which we have in mind, and we thus evade all necessity or obligation to discuss Kant's doctrine of space and time on its merits or in terms of the relation between his empirical and *a priori* psychology. With this understanding of our purpose, to limit the discussion to real or apparent anomalies in Kant's language, we can begin with the experience that best expresses the difficulties of common sense with the Kantian theory.

Nothing seems more paradoxical or absurd to common sense than the statement that space is ideal or only an *a priori* construction of the mind. Students immediately exclaim when this is asserted, 'Do you mean to say that there is no space outside of consciousness?' or something of the same import. But when we have pointed to the subjective character of colour, sound and other sensations, and shown the inevitable tendency of thought from the time of Descartes to the same conclusion in regard to space, enforced both by Kant's arguments and by actual experiments confirming them, the doctrine seems logically so cogent that the student does not know how to evade it, and yet revolts against the real or apparent extravagance of it, and asks, 'But is there not *something* external to consciousness?' at least correlated with it, but not represented by it, so tenacious is the conviction of the existence of objective space. There is usually no trouble in admitting the ideality or subjectivity of colour. But there seems no difficulty because physics teaches us to conceive that correlate as some mode of vibration, assumed to be colourless. As to space no such correlate appears to consciousness, and yet the conviction of objectivity is so strong that it is hard to have the opposite view taken seriously when a correlate to space consciousness is denied or questioned. But is not the difficulty after all only one of a defect of language to express the true condition of the case? Physicists still use the term

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"colour" either to denote the vibrations which affect the sensorium or to describe the quality of objects that affect us in this particular way. But they are quite conscious of the antithesis or opposition existing between "colour" physically defined, and "colour" psychologically defined. In fact they may be said to have been the first to give the idealist empirical proof of the non-correspondence between sensation and its cause; that is, the non-representative character of colour in reference to the vibrations assumed to determine it. But rather inconsistently with this conception language has gone on applying the same term "colour" to facts which have nothing in common with each other (by supposition) and no relation except one of time. Thus "colour" is a name for the material conditions of sensations which are not constituted by those conditions. More paradoxically stated the term is a name for colour and for phenomena which are *not* colour, but only its ground or cause. This inconsistency can be overcome by giving up the name for one of these phenomena. But then, if "colour" is to denote only the subjective mode of sensory reaction, non-representative of reality, the question may be raised, what evidence have we of any such correlate as the physicist assumes or asserts? The sensation is no attestation of its character, and when we abstract that we have nothing left but something like Kant's *Ding an sich*, the right to the assertion of which is so stubbornly disputed. But it is interesting to note that there is no such widely extended a tendency to question or deny the existence of some objective correlate to colour as a sensory reaction. All either tacitly or openly assume the physicist's postulate, provided he does not himself assert the identity between the conditions and the colour sensation. This is to assume a correspondent (non-representative) of colour, which the mind seems forced to postulate in order to make the occurrence of a colour sensation intelligible. The idealist may claim that this is wrong and unwarranted, but it is certainly quite as warranted as to assume the existence of anything at all other than the sensation or than the subject in which the sensation occurs. Solipsism may be very logical, but nobody has ever sincerely believed it. Something other than our own mental states is everywhere granted even when denying that its nature can be described in terms of mental states.

Now this same question can be asked in regard to time and space. Grant that we are obliged to regard them as forms of perception; may there not be an objective correlate of them which can no more be properly described by the

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terms space and time, as denoting intuitions, than colour can describe vibrations of ether? Is not this the demand of common sense when it asks: "Is there not *something* outside of us?" This is its desperate inquiry when it feels forced to accept the ideality of time and space as it does that of colour. I am not here asking a question for which I intend an affirmative answer, but only pointing out the natural demand of the mind and its consistency in the two conceptions. In the first the admission of an antithesis between colour as perceived and the nature of the external conditions of it does not lead to a denial of the latter, and we may well ask why the ideality of time and space would require the denial of a correlate equally antithetical to them. Is it irrational to suppose the existence of something (name it as you please) which is no more described by the terms time and space than vibrations are by colour? Should we press the antithesis between consciousness and reality any farther in this case than in that of colour?

If we answer the question in the negative the next query is, whether Kant's doctrine is consistent with such a view. Is it possible to maintain with Kant the ideality of time and space, and yet assert or believe the existence of some objective condition of reality which is a correlate of them, yet not represented by them? If we take Kant's most frequent statements there would be no doubt about the answer to this question. Indeed it may savour of ignorance to propose or suggest the possibility. For the consensus of opinion is so general, and the supposition so paradoxical, I suspect, to most students that it would be scouted at once. I certainly do not know a single statement interpreting Kant in this way. But this may be from defective reading, though the strongest and most frequent statements of Kant seem to treat them as *blosse Anschauungen*, as *nicht Predicate der Dinge an sich*, etc. But the question here raised is after all above this. If Kant intended to be consistent in the employment of *Raum* and *Zeit*, and not to apply them to external conditions not represented in the *reine Anschauungen*, he might well use the language he does about their subjective nature, and yet not deny an objective correlate of them. The main problem, then, is to know, first, whether Kant was wise enough to use his terms consistently, as the physicist does not in the case of colour, and second, whether it is consistent with his usage to postulate a correlate of them, in order to satisfy one of the strongest convictions of the mind; namely, that space and time would appear as much more arbitrary and alterable data in the empirical states of consciousness, if

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it were not for the regulative influence of external conditions other than mere sound, colour, etc. While I think that such a view might be consistent enough with the ideality of time and space, as defining the way we see things, it is not enough to depend upon this abstract consistency as an evidence of such a doctrine in the face of the statements by Kant apparently ignoring or denying anything whatsoever but the *reine Anschauungen*.

All this is preliminary to the consideration of some statements in the *Critique* which, on their surface at least, look like the doctrine here conceived. Whether they were deliberate statements with another meaning than their plausible one, or mere slips of the pen inherited from the precritical stages of his thought, will be the questions to be faced and discussed. The presumption will always be against the latter view and in favour of Kant's consistency here, in spite of the contradictions charged in other problems. But as the assumption of his consistency of conception does not militate against the doctrine here suggested, as long as the antithesis between consciousness and reality is asserted, it will be interesting to examine the passages to which I refer, and to find whether they indicate an inconsistency of language, or whether they are connected with some peculiarities of a complex doctrine. It will be best to mention several of the cases before commenting upon them. But previous to the discussion I must remark that I do not mean to beg any questions either as to the importance of the passages or as to their anomalous character. It is the peculiarity of the expression which invites attention and which seems to speak of time and space as if they might denote or imply something more than forms of perception. This appearance comes from connecting *an sich*, once *für sich*, with them where one is reminded of the import of this phrase in connexion with the more celebrated phrase *Ding an sich*. Let us enumerate the passages. The references are for Hartenstein's edition (vol. iii.). They are: 1, p. 71, line 8 from the bottom, "Der Raum, an sich selbst betrachtet, ist aber nichts Bewegliches". 2, p. 159, line 2 from the top, "Erscheinungen, als Gegenstände der Wahrnehmung, sind nicht reine (blos formale) Anschauungen, wie Raum und Zeit (denn die konnen an sich gar nicht wahrgenommen werden)". 3, p. 169, line 14 from the top, "Nun kann die Zeit für sich nicht wahrgenommen werden". 4, p. 170, line 23 from the top, "Nun kann die Zeit an sich selbst nicht wahrgenommen werden". 5, p. 174, line 16 from the bottom; the same phrase as the last. 6, p. 241, line

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16 from the bottom; speaking of *Dinge an sich*, he says, "Wollen wir dieses Object Noumenon nennen, darum, weil die Vorstellung von ihm nicht sinnlich ist, so steht dieses uns frei. Da wir aber keine von unseren Verstandesbegriffen darauf anwenden können, so bleibt diese Vorstellung für uns leer und dient zu nichts, als die Grenzen unserer sinnlichen Erkenntniss zu bezeichnen, und einen Raum übrig zu lassen, den wir weder durch mögliche Erfahrung, noch durch den reinen Verstand ausfüllen können." 7, p. 296, line 6 from the top, "Die Zeit ist an sich selbst eine Reihe," etc. And line 14 from the top, "Was aber den Raum betrifft, so ist in ihm an sich selbst kein Unterschied des Progressus vom Regressus," etc. There are three others of an important character which will be mentioned in their place.

In regard to the first of these passages the first point to be remarked is the conception that motion or movable things are *empirical* data, and space is spoken of as something *in itself*, at least according to the superficial interpretation of the language. The doctrine maintained about motion in the passage is undoubtedly that it is not a property of *Dinge an sich*, but only of *Ersheinungen*. Now the question is, what relation does it sustain to *Raum?* Kant undoubtedly holds that this empirical datum takes place *im Raume*, and hence it would appear that the "*an sich selbst betrachtet*," with the evident exclusion of motion from the nature of things, would be taken to refer to a *Raum an sich* as opposed to *Raum als Anschauung*. If this is not Kant's thought, what is the use of the "*an sich selbst betrachtet*" at all? If *Raum* is an *a priori Vorstellung* or *reine Anschauung*, and *Bewegung* an "*empirisches Datum*," why not say "*der Raum ist nichts Bewegliches*" and omit the "*an sich selbst betrachtet*" altogether? Perhaps the answer would be that the latter phrase means to say or imply that there is a distinction between the consciousness in which motion is an element and that in which space alone is perceived or intuited; that is to say, that there is an *empirical* as well as an *a priori Raum*. If this be the conception *Raum* as a *reine Anschauung* and *Raum an sich selbst betrachtet* would be the same. But then if Kant admits the existence of an *empirischer Raum* in which motion is found, would he not be obliged to admit that space may be an *abstracter Begriff?*—the very conception which he emphatically denies. The same difficulty will appear if we suppose that the phrase *an sich selbst betrachtet* means to describe space as an abstract conception. So far as I can see, the phrase can either have no meaning at all and is merely pleonastic, or it must denote

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one of two things, if a meaning is to be given it. Either it denotes a *Raum an sich* in contrast with *Raum* as a subjective form, or it denotes *Raum* as a *reine Anschauung* in contrast with *empirischer Raum*. If the latter be the meaning we can ask two questions. How can Kant connect empirical and pure space as *Vorstellungen?* and how can he reconcile the distinction with the denial that the idea of space is an abstract conception? If he connects the two data we have the difficulty involved in the second question which can be solved only by Lotze's doctrine that space can be both an *abstracter Begriff* and an *a priori Anschauung*, a position which will seem to many to violate the law of parsimony. Again the connexions of the two would seem to imply a direct contradiction with the other Kantian doctrine that the empirical is relative, not necessarily universal, and the *a priori* is universal. That is, space could be both an individual and a universal datum. This contradiction could be solved only by saying that empirical space is individual and relative and *a priori* space universal. But this would be denying the qualitative connexion of the two data, setting up an antithesis between two subjective facts denoted by the same name. If we are to have that liberty, there would be no objection to talking about objective as well as subjective space; that is, space as a condition and correlate of the subjective form and yet in qualitative antithesis to it. But the uniform manner in which Kant considers *Raum* as an *a priori Vorstellung* would seem to leave as the only intelligible view of the phrase *an sich selbst betrachtet* that it means to qualify *Raum* in the same sense that *an sich selbst* qualifies *Dinge*. If this be true we have an objective something corresponding, a non-representative correlate, to the subjective form called space, and in spite of the antithesis denoted by the same term, as physics employ colour to describe antithetical facts. Is this a possible and rational interpretation of Kant or not? I shall not pretend to assurance on the matter, nor even a probability. I can only ask the question, and further inquire whether the other passages bear out such a supposition.

In the second, third, fourth and fifth passages the phrases are substantially the same. They are practically "Raum und Zeit an sich können nicht wahrgenommen werden". The problem is to see whether this mode of statement is consistent with what is generally taken to be the true Kantian doctrine. Superficially viewed at least, the statement would seem to mean that there are a time and space which cannot be known or perceived. If so, Kant supposes

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both a subjective form of sense and an objective form or condition, a correlate of some kind, as indicated. But we might conclude too hastily from this language. Much might depend upon the technical meaning of *wahrnehmen*. Now in the context of the third passage Kant definitely defines *wahrnehmen* as *empirisches Bewusstsein*, and this not only can be, but probably is, the import of the term in the other passages. Assuming this, therefore, it could be said that Kant is simply denying that time and space are empirical perceptions, which would be entirely consistent with his general doctrine. If *wahrnehmen* were synonymous with *anschauen* in these cases it might be plausible, and perhaps it might be necessary for intelligible meaning in the case, to suppose that *Raum und Zeit an sich* denoted objective space and time though contrasted with the subjective by an antithesis. For Kant has so often said that *Raum und Zeit* are *reine Anschauungen* that, if *anschauen* and *wahrnehmen* were identical, there could be no consistency between the statements *Raum und Zeit sind reine Anschauungen*, that is *können angeschaut werden*, and *Raum und Zeit an sich können nicht wahrgenommen* (*angeschaut*) *werden*, except by supposing that the distinction between *Raum und Zeit* and *Raum und Zeit an sich* is the same as that between *Erscheinungen* and *Dinge an sich*. I admit, however, as well as believe, that *wahrnehmen* must here be taken as *empirisches Bewusstsein*, and hence the most natural interpretation consistent with the general doctrine would be as already stated; namely, that Kant is simply denying that time and space are empirical perceptions. But if this be the meaning why does he always append the *an sich* to the terms? In this interpretation the phrase is merely a fifth wheel to the coach. Kant would have said the same thing in the formula *Raum und Zeit können nicht wahrgenommen werden*, because he has so often asserted that they are *reine Anschauungen*, *nur a priori vorgestellt*, or *a priori angeschaut werden*, etc., using the last phrases as indicating his meaning. The *an sich* must either be pleonastic, as remarked before, or it means to qualify *Raum und Zeit* in some intelligible way. The former alternative introduces considerably more confusion into Kant's system than is already supposed to be there. The latter alternative requires us to suppose that he was either assuming a transcendental space, or using *an sich* to describe a distinction between *empirische* and *reine Anschauungen* in which we should not only find the difficulties already discussed, but also the added difficulty of supposing that *an sich* qualifying *Gegenstände* necessarily implied the distinction usually as-

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sumed between *Gegenstände als Erscheinungen* and *Gegenstände an sich*; namely, the distinction between phenomena and noumena, *Erscheinungen* and *Dinge an sich*. That is to say, we might seriously raise the question whether *Gegenstände an sich* necessarily denoted the same as *Dinge an sich*. The simplest interpretation, therefore, of the case, and the one that introduces the least confusion into the doctrine, is that *an sich* in these passages really recognises an objective time and space. We may regard it as consistent or inconsistent with the general theory, just as we please. If we suppose it inconsistent with it, we can explain it as a form of speech inherited from the precritical stage of Kant's thought and expressed here without remarking the contradiction with the later view. On the other hand, if we regard the conception as consistent with his ideality of space and time, we may dispute the consistency of the language, on the ground that objects conceived by an antithesis should not be denominated by the same terms.

That we are not forced to interpret the *an sich* here as describing *reine* or *a priori* as contrasted with *empirische Anschauung*, but at liberty to give it the meaning which it has in connexion with *Dinge* or *Gegenstände*, I think is quite evident from other passages where Kant is distinctly asserting that time and space are *only* forms of perception, and not things in themselves, that is not realities *an sich*. Two of these passages are especially clear on this point and must be quoted, though several statements in the metaphysical and transcendental expositions of time and space could be mentioned as proving the same point. The first of the two passages referred to is (p. 69, note): "Die Zeit ist darum nicht etwas an sich selbst, auch keine den Dingen objectiv anhängende Bestimmung". The second is (p. 72, lines 11 and 12 from the top): "dass, wenn wir unser Subject oder auch nur die subjective Beschaffenheit der Sinne überhaupt aufheben, alle die Beschaffenheit, alle Verhältnisse der Objecte im Raum und Zeit, ja selbst Raum und Zeit verschwinden würden, und als Erscheinungen nicht an sich selbst, sondern nur in uns existiren können". Or we might again (p. 70, lines 22-25 from the top) note the emphatic denial that time and space characterise (vorstellen) *Dinge an sich*. A few lines farther down the phrase *diese Formen an sich selbst* carries with it the meaning of *an sich* which we wish to suggest as possible here, not to say anything of the many other instances and the universally accepted doctrine of Kant.

But let us go back to the first instance quoted. Here

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*Zeit* is directly asserted not to be *etwas an sich selbst*. This *an sich selbst* must mean either what it expresses in the phrase *Dinge an sich*, or means to deny that it is a *reine Anschauung*. The latter supposition is perfectly absurd, unless we wish to ascribe to Kant a contradiction too glaring to suppose. I do not see how we can say or suppose that the phrase in this case can mean anything else than to deny without qualification that time can denote any objective existence whatsoever. The use of *objectiv* in the case reinforces the meaning of *an sich* with the negative particle. Now if *an sich* in this negative proposition has the same meaning as when in the phrase *Dinge an sich*, I do not see why it cannot or must not have the same meaning in the positive conceptions *Raum an sich* and *Zeit an sich*. If it does have this meaning here, the case is one in which an objective space and time are admitted in spite of the antithesis between this correlate and the subjective forms. The second, third and fourth passages just referred to reinforce and repeat this interpretation of the phrase, and we have only to say, further, if the terms have not the same meaning in the various quotations mentioned there would seem at least to be confusion worse confounded introduced into the Kantian system.

All this again seems to be confirmed in the language of the sixth quotation, where a certain assumption is said to leave over a space which is not given either through the senses or the understanding. But there may be two doubts in this case. First, the term *ausfüllen* may not be the synonym of *geben* or *vorstellen*. Second, the term *Raum*, interpreted by the translators as *empty space*, may be only a metaphor. But if it is not a metaphor, and if *ausfüllen* here means the same as *vorstellen*, then the instance seems to conceive a *Raum an sich*, and the problem is as we have discussed it.

One thing to be remarked in this connexion is that the unequivocal interpretation of *an sich* in these passages introduces fewer difficulties and inconsistencies in Kant's doctrine than the opposite. The main objection to such a possible view of Kant as my criticism presents, comes from the supposed inconsistency which it implies against his doctrine of space. But this is only formal, because if the antithesis be still maintained between the form of perception and that which may be called *Raum an sich* we can very well say that Kant's language only is at fault and that he may still remain *logically* (materially) consistent, while if we try to maintain his formal consistency by giving any other than his usual meaning to *an sich*, we raise the question of its meaning in

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the phrase *Ding an sich* where it may as well be equivocal as anywhere else, and if so, there is no fundamental logical objection to noumena as affirmed by his system. What I should contend for, then, would be that the equivocal import of *an sich* in the case of space not only creates suspicion as to its fixed definite meaning in the phrase *Ding an sich*, but also creates more difficulties in his philosophy than to suppose that Kant could admit an objective correlate of his mental form, though slipping when he calls it *Raum*.

The seventh quotation shows a use of *an sich* more in keeping with the supposition that it denotes the pure or abstract, and not an objective correlate. Here it is said that *die Zeit ist an sich selbst eine Reihe* and *was aber den Raum betrifft, so ist in ihm an sich selbst kein Unterschied des Progressus vom Regressus.* These statements could both be made after omitting the *an sich*. Unless Kant means to distinguish between the empirical or material and the *a priori* or formal element of experience, and therefore to apply *an sich* to express the formal, there seems no good reason for using *an sich* at all. Certainly the whole statement would not seem to apply to things in themselves, whether they are realities other than space and time, or objective conditions expressed by space and time. Still I can see no reason for using *an sich* in these cases unless the phrase meant to describe something other than the phenomena, because Kant has so constantly treated space and time as *reine Anschauungen* without the need of qualifying them as *an sich* that we must suppose he is either speaking of objective space and time or conceding, for the sake of argument, the language of common sense assuming their objective existence. The latter being possible it may not be proper to press the case too hard. The same also is true if *an sich* is only another name for the formal aspect of experience in contrast with the material. But it is a usage quite as exceptional as the one which would claim it for objective time and space, and only the supposed incompatibility of the remaining conceptions in the propositions with noumena can throw doubt on the import of *an sich* to qualify objective time and space in these cases.

There is another remarkable passage which should be noticed for its apparently definite recognition of an objective reality to which the term space is applied. It is the footnote appended to the proof of the First Antinomy (p. 307). The language is: "Der Raum ist blos die Form der äusseren Anschauung (formale Anschauung) aber kein wirklicher Gegenstand, der äusserlich angeschaut werden kann. Der Raum, vor allen Dingen, die ihn bestimmen (erfüllen oder



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begrenzen) oder die vielmehr eine seiner Form gemässe, empirische Anschauung geben, ist unter dem Namen des Absoluten Raumes nichts anderes, als die blose Möglichkeit äusserer Erscheinungen, so fern sie entweder an sich existiren oder zu gegebenen Erscheinungen noch hinzukommen können."

The first thing to be observed here is the decided anticipation of John Stuart Mill's famous phrase about "the permanent possibility of sensation" and the philosophic strength and weakness of that conception. But when we remark the emphatic assertion in the first sentence that space is only a formal intuition and not a real object (Ding an sich) to be externally perceived, we have as clear an annunciation of Kant's general doctrine as can be imagined. The next sentence, however, declares as positively for an *absolute space* which determines the possibility of external phenomena, and we have to ask what it means. Is this a flat contradiction of Kant with the first statement? It would certainly be so if, on the one hand, we assumed that he was not merely stating the conception of others, and on the other, that no antithesis existed between subjective and objective space. But these facts may indicate a liability to misinterpret the whole passage. However, the case is one in which, if we suppose an exceptional use of the word *Raum*, Kant can hardly plead in defence a slip of the pen, due to precritical influences, because the second statement immediately follows the first and is meant in some way to contrast with it. The real question to be asked is, does Kant intend to make *der absolute raum* synonymous with *Raum an sich?* If so we have further possibilities in the case. First, it might be one of those vehicular suppositions which he takes from the physical sciences at times for the sake of illustration and argument without intending to commit himself to the common conception of their nature. I can hardly see how this meaning can be put upon the phrase here, especially when we remark the relation asserted of it to external phenomena. Second, if Kant does mean *Raum an sich*, we have to ask again whether he means *reine Anschauung* by it, or an *Etwas an sich* which cannot be perceived. One would perhaps naturally think the latter, but I confess to a want of assurance in this interpretation. At the same time there seems less reason to accept the former view, because the relation of this absolute space to external phenomena "either as they exist in themselves or as they are added to given (empirical?) intuitions" seems to preclude the conception of this space as a *reine Anschauung*, though what follows

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immediately as well as an italicised statement before seems to recognise an empirical intuition of space and thus contrasts it with the *a priori* intuition of it as generally asserted. But the strongest evidence that the phrase is the same as *Raum an sich* is the reference to "Things which present an *empirical intuition* conformable to space prior to them," in which we must assume either a representative correspondence between this empirical intuition and the absolute space, which is wholly contrary to Kant's doctrine here and everywhere else, or that "conformable" (gemässe) only expresses correlation, in which case we have a *Raum an sich*, which, though it is only a *Möglichkeit der Erscheinungen*, suggests the strong natural impulse of Kant to apply the term to data that had to be separated by all the difference of an antithesis.

I shall not press this view in the last case any farther. It is not so clear as in some of the first quotations, even if it be admissible at all. But it is suggested by the language, and all the instances when taken together are illustrations of a possible view that I have not seen discussed as deducible from the text of the *Critique*. The gradual growth of Kant's doctrine, as reflected in his earlier works, toward the purely idealistic view of space and the uncertainty of Kant's mind on some of the most fundamental of his positions as reflected in the *Nachlass* suggested to me the propriety of examining whether the fluctuations of his thought would betray any traces of themselves in the *Critique*. They seem to do so, and the only question is, whether the possible view of *Raum und Zeit an sich* here taken is merely a precritical relic unconsciously retained in the system and to be explained as such and weeded out of it, or whether it represents a legitimate distinction denominated by the wrong terms. For myself I do not see any inherent contradiction in supposing an objective correlate to our subjective perception of space, any more than in supposing an objective condition related to subjective colour sensations. But the main question is whether Kant holds such a doctrine, and if he does, as the phrase *Raum und Zeit an sich* seems to indicate, the further question is whether this is a contradiction or merely a misuse of the terms *Raum and Zeit* to denote both terms of an antithesis legitimate enough in themselves. Kant is generally more consistent than the physicist who proves to us the subjectivity of colour, and yet goes on to describe the vibrations, which are its objective correlate and non-coloured, by the term colour. But in these few instances he certainly raises the suspicion that he does not mean to wholly exclude

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a correlate of subjective space. His formal consistency can be saved by pleading the influence of precritical thought from which he had not wholly emancipated himself. But as his material consistency might stand with the assumption of an objective condition and non-representative correspondent of space perception, we can only remark in his language an attempt, on the one hand, to idealise space and time as colour, sound, etc., had already been idealised, in order to break up Cartesian dualism, and, on the other, to conform to the strong instinct which seems to force us away from solipsism, absolute idealism, or any theory which denies an objective influence in the production or existence of sensations and perceptions. Would not the possible view here advanced help to explain Kant's attempt to refute idealism? This may be a strained interpretation, but I should be interested to know whether it has anything in its favour but my own impressions.

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# VI.—DISCUSSIONS.

## MR. STOUT'S ALGEDONIC THEORY.

I FIND myself on the whole so thoroughly in sympathy with Mr. Stout's treatment of psychological doctrines in his *Analytic Psychology*, and I so sincerely admire the work he has done, that I hesitate to express dissent from certain special points in his volumes which seem to me open to criticism. But the value of his work is already so widely recognised that it will evidently be generally consulted by psychologists for many years to come, and as the author has done me the honour to treat me as an opponent worthy of criticism I feel impelled to ask the readers of MIND to allow me to examine briefly the differences between us. These differences I am sure are on the whole not as formidable as would appear from the text of Mr. Stout's concluding chapter, although, as will presently be seen, they cannot be harmonised in certain directions in which I still think Mr. Stout is in error, notwithstanding his careful and acute argument.

In the first place let me say that it is a great satisfaction to find Mr. Stout abandoning the tripartite division of mental phenomena into knowing, feeling and willing. That this classification is an obstruction to the scientific treatment of mental life has long seemed to me obvious: the first psychological article published by me (MIND, Oct., 1889) was written because I felt the doctrine to be unsound. I must confess however that Brentano's scheme, which Mr. Stout practically accepts, does not seem to me to present a thoroughly satisfactory way out of the difficulty; for while a classification on the basis of the mode in which consciousness refers to an object introduces a most interesting and valuable method, it is one which fails to emphasise certain important mental aspects. It fails, for instance, to bring into proper prominence the temporal qualifications of conscious life, gives little scope for the discussion of expectation and memory. Perhaps Mr. Stout expects to cover this ground more fully in his promised *Genetic Psychology*, but it will still remain a defect in his system, it appears to me, that these subjects are not treated fully under analytics.

Before considering Mr. Stout's discussions of theories of Pleasure and Pain in which he treats me as an opponent, I wish to call attention to certain of the positions he takes which seem to me to

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involve errors of analysis, errors which one scarcely expects from so acute an introspectionist.

Mr. Stout says very little concerning the emotional states, and that fact, taken with what he does say concerning them, seems to me to show that he has not given to this part of our mental life the attention it deserves. "Every Emotion," he says (vol. i., p. 115), "such as fear, anger, indignation, etc., contains in intimate combination both feelings of pleasure and pain and feelings of desire or aversion." Now clearly this cannot be defended as an accurate statement: there are certain well-recognised emotions which appear to me to be entirely apart from desire and aversion; of such emotions surprise is an example; and it may be noted in passing that the algedonic quality of surprise is so unemphatic that Prof. Bain finds surprise to be in his experience a state of indifference, of "neutral excitement"; my own introspection leads me to think that in most cases surprise is practically "indifferent," although at times it may be pleasant and at other times it may be painful.

Mr. Stout's difficulty here seems to be due to the fact that he does not always hold to a correct view of the nature of desire, as appears clearer I think a little farther on.

But just here let us note that the difficulty above spoken of disappears if we hold, as I hold, that the emotions on the one hand are the psychic coincidents of instinct actions, are what I have called "instinct feelings," to which pleasures and pains attach as they attach to all forms of sentience: that desire on the other hand is the psychic state involved when an idea which we appreciate as possible of realisation in an apperceptive system which arises, nevertheless fails of realisation in that system. Desire is markedly algedonic inasmuch as it involves the pains of obstruction, and usually has attached to it the anticipation of pleasures which would accrue if the realisation were completed. When there is an inhibition of the instincts which if expressed in instinct action would produce emotion, then *impulses* arise, and there is then also a tendency to the appearance of a persistent idea which we recognise as realisable but not realised, *i.e.*, of a desire; but the emotional states, which are active states, and the impulses and desires, which are states determined by partial inhibition, are to my mind clearly separable. That I am correct in my judgment as to the source of Mr. Stout's difficulty becomes clearer I think when we consider his discussion of desire and aversion.

Desire is a term which common folk in general, and not a few clever psychologists, use loosely, sometimes as exclusive and sometimes as inclusive of impulse. Strictly speaking desire is exclusive of impulse, as becomes apparent when we consider certain cases of desire in which impulse does not appear; *e.g.*, the desire to recall the name of a man whose face is familiar. But desire is usually followed quickly by impulse which is the coincident of restricted tendencies to motor reaction, and it is therefore not to be wondered at that in common speech desire and impulse tend

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to be identified: but this fact surely gives the psychologist no excuse for such careless identification.

Mr. Stout speaks of desire and aversion as "the negative and positive phases of conation" (vol. i., p. 132). Here clearly we are dealing not with desire, if my suggestion as to the proper usage of the term is correct, but with impulsive phenomena, with "endeavour to and endeavour from" (p. 133); with longing (which Mr. Stout calls desire) and aversion. It is evidently because Mr. Stout looks upon desire in this light that, as we have seen above, he connects it so closely with emotion.

Emotions are "instinct feelings," the coincidents of instinct actions, and are thus closely connected with impulses which are all of one form which is typical in the restriction of instinct actions which would appear were restriction removed.[1] Unless I am mistaken desire is a mental phase of a different nature from impulse.

If the word desire is correctly used it has no opposite in aversion: the idea which fails of realisation in desire may be the presence of an object or its disappearance, or may not be related to either its presence or disappearance. But certain of the impulses which *follow* desire may appear in the opposite phases described by Mr. Stout. Desire, as Mr. Stout here uses the term as equivalent to *longing*, is that special form of impulse which leads us towards the object stimulating us to the reaction, and it of course has its opposite in that other special form of impulse which leads us away from the stimulating object, *viz.* aversion.

Let us now turn to Mr. Stout's doctrine of Pleasure and Pain, which he states thus (vol. ii., p. 270): "The antithesis between pleasure and pain is coincident with the antithesis between free and impeded progress towards an end. Unimpeded progress is pleasant in proportion to the intensity and complexity of mental excitement. An activity which is thwarted or retarded either by the presence of positive obstruction, or by the absence of co-operative conditions, or in any other conceivable way, is painful in proportion to its intensity and complexity, and to the degree of the hindrance." Mr. Stout makes a strong argument in favour of this theory, but it seems to me to be open to certain fundamental objections which he appears to have overlooked.

Let us first consider the doctrine of Pleasure. In the first place it seems clear that in our complex organisms there can be no such thing as absolutely "free and unimpeded progress to an end," at least no such thing in any case where consciousness is affected by the action: if there are any cases of such unimpeded progress they

[1] I use this expression because certain impulses are determined by the restriction of acquired habits which are pseudo-instincts, not being inherited in the form in which they appear, although they have all other characteristics of true instincts.

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are only to be found among the reflex actions, and then only by those who hold (as I do not) that reflex actions do not affect consciousness at all. If this be true it follows from the theory that all distinctly conscious progress to an end must be in some degree painful. The only way in which we can account for the appearance of a pleasure is by assuming that there is what we may call a norm of obstruction which produces very little pain, or what we call indifference; and that if the obstruction be lessened below that norm pleasure is produced: this however is not Mr. Stout's theory, and is evidently untenable.

In the second place I fail to see how it is possible under this theory to account for the unquestioned fact that pleasure decreases, and is finally displaced by pain, if the psychosis involved in the progress towards an end is continued under conditions of intensity. Under the theory this can only be explained I fear by supposing the continuance to involve a decrease of freedom, which is really an increase of obstruction; and as no pain is noted in such cases, but merely a decrease of pleasure, this involves the supposition that an admixture of pain with the pleasure balances and obliterates part of the pleasure. But I find no evidence in my own consciousness, nor in any psychological facts, of any such plus and minus action in the play of algedonic qualities.

Turning now to the theory of Pain. If the pain is determined by the degree of hindrance, then with a given amount of vividness and complexity the pain should increase with the amount of hindrance; we should therefore expect to note as a common experience, in connexion with a continuance of a psychosis determined by progress to an end, an increase of pain due to increase of hindrance, up to a point where the hindrance involved absolute prevention of the activity; and then either a sudden disappearance of the psychosis to which the pain was attached, yet withal if that were possible a maximum of pain; or else a sudden disappearance of the pain together with the sudden disappearance of the psychosis to which it was attached. So far as my own experience goes I find no evidence to corroborate this result of the theory. Moreover, if we go to the root of the matter, so far as I can see the only difference between a hindered and a free progress under Mr. Stout's theory must be in the fact that some elements of the total complex psychosis are totally inhibited where hindrance occurs; and this partial inhibition involves a cessation of a part of the total sum of the neural activities which have the psychosis as their coincident. This cessation of the partial activity would involve the failure of all effect upon consciousness from the inhibited element and could scarcely give rise to a special conscious state such as pain is. It is this to which I refer when I say (what Mr. Stout quotes, vol. ii., p. 293) "that painful restriction of the normal activity in an organ does not imply *action* but rather *non-action* in the organ restricted". No theorist with whose work I am acquainted would hold that mere non-activity could produce an effect in con-

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sciousness, and surely there is no possible ground in Mr. Stout's exposition of the relation between neural and psychic activity for supposing that he would uphold such a view.

Under my own theory what appears as hindrance pain is due indirectly to what is really action under certain special conditions. I may be in error as to the nature of these conditions, but that does not disprove the general hypothesis.

I look upon pleasure and pain as feelings of relation. If *a* be the psychic side of a physical activity *A* which is normally produced by stimulus *S;* then if *A* be produced by stimulus S − n, or by stimulus S + n, we should certainly expect to find a noticeable difference in consciousness due to the changed relation of S and A, while neither *A* nor *a* would be themselves markedly different; the difference of relation between *S* and *A* produces under my view the pleasure (S − n) − pain (S + n) quality quite apart from, although coincident in time with, *a*.

Or to put this diagrammatically:—

If S produces *A* we have content *a* with no pleasure and no pain, a state usually spoken of as indifferent.

If S − n produces *A* we have content *a* and pleasure, surplus stored forces being called into action and producing *A* when the stimulus is subnormal.

If S + n produces *A* we have content *a* and pain.

Notwithstanding Mr. Stout's criticism I cannot but think my view more plausible on the whole than his: especially in consideration of his acknowledgment that his theory practically breaks down when it comes to deal with sense pleasures and pains (vol. ii., p. 303).

But passing over for the moment the points of objection raised against my view, which do not seem to me to be important and which the reader may not care to consider, I wish to call attention to the fact that in what seem to me to be the main fundamental doctrines Mr. Stout and I are in entire accord.

My monograph to which the author refers so appreciatively was written to show that the current doctrines of pleasure-pain are untenable and to present a theory which seems to me to accord more accurately with experience. With my objections to these current doctrines I find Mr. Stout expressing frequent agreement. How far he and I are in accord in our own theoretical positions will appear if I present my view and his in close connexion.

1. I hold that pleasure-indifference-pain are qualities of mental states, and this is my main point of contention.

*Mr. Stout I judge would accept this position. He joins with me in rejecting the Kantian view of the existence of "feeling" as a special mental mode; and such modifications of that view as Dr. Ward's.*

2. I showed first that pleasure and pain are not directly related respectively to welfare or disaster to the organism.

*Mr. Stout agrees with me here* (vol. ii., p. 268).

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3. But I tried to show that they are related to the efficiency or non-efficiency of mental elements, *i.e.*, the parts of consciousness held in attention; and that they are presumably related to efficient and non-efficient action of the neural elements that are coincidently active.

*I judge that Mr. Stout would agree to the psychological part of this statement at least.*

4. I surmise that pleasure-indifference-pain are qualities one of which must and any one of which may belong to any separable element of consciousness, any momentary ridge of the wave of mentality (indifference being a mere point of passage from pleasure to pain, in reality not often experienced, although careless observers mistake slightly pleasurable and painful states for states of indifference and thus come to consider indifference broader than it really is).

*In this I think Mr. Stout agrees with me also.*

Now evidently we are both defending one and the same psychological doctrine, one which is in my view very important indeed, one which in truth is not current in our day but which we both hope will prevail: and in the main in respect to this important contention we are in agreement.

The directions in which we disagree are comparatively speaking of very inferior import, and I cannot help regretting that Mr. Stout makes so much of the differences between us and so little of the agreement.

We both agree again that having presented a theory which is not current we ought to make attempt to show that it is in harmony with other psychological facts, and that if possible we should try to show that it is not in opposition with what little we know of the physiological activities coincident with the states we are studying. This we both try to do and our critics must judge which of us is the more successful.

In closing these notes I may be allowed to say a few words concerning the objections raised by Mr. Stout to my views, to which I shall refer by page numbers of the second volume of his book in order to avoid wearying the reader.

P. 291. In the consideration of a long day's work undertaken by a man to whom such work is habitual we note at the first a flush of pleasure connected with special efficiency of action due to the rest of the night past; but soon the nutrition becomes closely equalised to the drain upon the active parts; the pleasure becomes slight and turns very gradually into slight pain; the period of so-called "indifference" is to the careless observer a long one. The expectation mentioned by Mr. Stout would be entirely unwarranted unless work during the whole of a long day were only occasional to the worker, and in such a case the expectation would probably be realised.

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P. 292. I think a careful reader of my answer to Prof. Bain is not unlikely to find my explanation more plausible than Mr. Stout will allow.

P. 293. When I say that painful restriction of the normal activity of an organ does not imply *action* but rather *non-action* in the organ restricted, I do not refer only to inactive muscles as Mr. Stout surmises. As I have explained above, and very fully in my book, I refer to the neural organ (whatever it is or wherever it is placed), activity in which is supposed to be coincident with the appearance in consciousness of the element that disappears when restriction occurs.

P. 295, l. 2. The blood supply will indeed be smaller *eventually* but not immediately: when sufficient time has elapsed for this supply to be reduced the pain should disappear, and this accords with our experience.

L. 6. If this whole explanation *looks like* a mere figment invented for the occasion, I am glad to say that it was not an invention of this nature: and I beg further to suggest that it appears to me to be no more improbable than the very similar explanation made by Mr. Stout himself in another connexion in vol. i., p. 220, last four lines ff.

P. 297. The facts in reference to over-tiredness, which Mr. Stout raises as an objection, have been shown to be in accord with my theory and used to corroborate it (*Pain, Pleasure and Æsthetics*, p. 212, close of Sec. 12), a fact which Mr. Stout has evidently overlooked.

P. 299. Evidently Mr. Stout has failed to read carefully p. 289 of my book above referred to, or I have altogether failed to express my meaning, otherwise he could not have written what he has written concerning my explanation of hunger. The nutrition carried by the blood to the organs which are active in the process of digestion is of course not to be confounded with the food stuff placed in the mouth and carried into the alimentary canal. It is to be noted also that I do not think he is correct in stating that "hunger proper is a sensation definitely localised in the alimentary canal". That is not my experience, nor is this statement considered accurate by a number of eminent physiologists to whom I have referred the subject.

HENRY RUTGERS MARSHALL.

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## VII.—CRITICAL NOTICES.

*Man's Place in the Cosmos, and other Essays.* By ANDREW SETH, M.A., LL.D., Professor of Logic and Metaphysics in the University of Edinburgh. Edinburgh and London: William Blackwood & Sons. Pp. viii., 308.

THE volume before us is a collection of Essays which have been published in various magazines during the past six years. But their republication in their present form has a fresh interest; for, while they are, almost without exception, reviews of books which have attracted the attention of all students of philosophy in recent years, and while their immediate topics are thus various and occasional in character, these essays yet possess an unusual degree of unity both in their real subject and in the method of philosophical criticism which they apply. The title of the first essay belongs not merely to it but to the volume as a whole: man's relation to nature is the theme which is approached by different paths in all the discussions. With Mr. Seth this is the central question of philosophy; and he never departs from it, however much the form in which it is raised may vary with the occasion that prompts him to consider it.

In their method, too, no less than in their problem, the discussions of the present volume are in substantial agreement both with each other and with Mr. Seth's previous writings. Each of the Essays before us embodies, in one form or another, the 'Argument from consequences,' whose use is expressly defended in a note to the Essay on "Mr. Balfour and His Critics". "The absolute value of the ethical life" (vii.) is frankly assumed by Mr. Seth; and the degree in which they are consistent with this assumption is the criterion which he applies unsparingly to the various theories which he considers. The essays are thus not only arguments to a single conclusion, but also arguments whose method is fundamentally the same. Mr. Seth's interpretation of the canon that reason must remain consistent with itself does not allow him to be satisfied with principles of explanation which are only applicable to cognitive experiences. Experience, with him, is wider than knowledge; and morality is as good an experience as any other. He refuses, therefore, to admit the finality of any principle of explanation which is inadequate to account for morality or which does less than justice to the postulates of

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"ethical and spiritual life" (308). The contention that man's personal agency and his spiritual experiences furnish "our only clue to the mystery of existence" (vii.) determines the whole trend of Mr. Seth's argument.

The interest in this contention is very obvious in the first Essay on "Man's Place in the Cosmos," a review of Mr. Huxley's Romanes Lecture on "Evolution and Ethics". Mr. Seth is led to discuss the Romanes Lecture by his sympathy with its author's "insistence on the gulf between man and non-human nature" (7); for "if man with his virtues and vices be included *simpliciter* and without more ado in a merely natural order of facts, we inevitably tend to lose sight of that nature within nature which makes man what he is" (7); and this tendency is illustrated by Mr. Seth in a criticism of naturalistic literature which shows that it is no purely scholastic debate, but a reflexion upon living issues of thought and feeling, that leads him to insist that "the breach between ethical man and pre-human nature constitutes without exception the most important fact which the universe has to show" (12). Mr. Seth does not indeed accept that denial of the unity of the cosmos which is implied in Mr. Huxley's antithesis of the "cosmic process" and the "ethical process". He finds the merit of the evolutionary theory of ethics in its "frank recognition of the unity of the cosmos," in which "it is, so far, at one with the philosophical doctrine of Idealism to which it is otherwise so much opposed" (14). But he defends Mr. Huxley's contention on the ground that "it is really directed against the submergence of ethical man in the processes of non-ethical and non-human nature," and that it is called for by the tendency of the evolutionary method of explanation "to substantiate antecedents in abstraction from their consequents, and thus practically to identify the cosmos with its lowest aspects" (19).

Mr. Seth also protests against Mr. Huxley's absolute and unguarded assertion of the moral indifference of nature, but finds in it the truth that non-human nature sanctions only a very limited range of moral qualities, and these only so long as the environment tends to produce or perpetuate them. The contention in fact is substantially that of Mill—that non-human nature furnishes no trustworthy moral guidance. It is the lesson of Mr. Seth's criticism, as well as of the lecture which he criticises, that what is called biology, and especially that the idea of evolution, is a reflexion upon mechanical sciences of living forms which presupposes conceptions of value or worth borrowed from elsewhere. Nature as nature means no more than it did for morality, although we may be led to suppose that it is capable of teleological interpretation. The possibility of such interpretation, the unity of the cosmos, depends, as Mr. Seth points out, on the recognition "of an End of absolute worth or value which is realised or attained in it"; and such an end is found "only in the self-conscious life of man, in the world of Truth, Beauty ,and Goodness which he

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builds up for himself, and of which he constitutes himself a citizen" (27). Unless this spiritual world be the true interpretation of all reality, it becomes baseless and absurd; and its absurdity means that nature itself is void of all significance. But "the demand for an End-in-itself—that is, for a fact of such a nature that its existence justifies itself—is as much a necessity of reason as the necessity which impels us to refund any phenomenon into its antecedent conditions. And further, unless we sophisticate ourselves, we cannot doubt that we possess within ourselves—in our moral experience most conspicuously—an instance and a standard of what we mean by such intrinsic value" (28).

Mr. Seth suggests an idealistic interpretation of the universe as the legitimate conclusion of the ethical opinions which, in point of fact, did not lead Mr. Huxley beyond pessimism and agnosticism in theory, and a personal attitude of "Stoical heroism".

This Essay is followed by a republication of the address on "The Present Position of the Philosophical Sciences," with which Mr. Seth entered, six years ago, on the duties of his present chair. This, which is the earliest of the contents of the present volume, stands perhaps in a somewhat looser relation to the book as a whole than the other Essays. Except in its concluding pages on mechanical and teleological explanation, it does not touch the topic which gives their unity of character to the other discussions. But it would be ungrateful to depreciate on this account the pleasure of renewing acquaintance with an address whose admirable and judicial insight is all the more patent after this interval of time, and which is, among other things, an object-lesson in the degree of precision and instructiveness that may be imparted to a discourse intended for a general audience.

The Essay which follows—on "The 'New' Psychology and Automatism"—is primarily a criticism of Münsterberg's Psychology and more particularly of his *Die Willenshandlung*. Mr. Seth does not contest the reasonableness of the attempt to find 'natural explanations' in psychology (67); and he does not object to the "intimate linking of the psychological and the biological" (70), which is characteristic of contemporary psychology. There is much, also, in Münsterberg's account of volition with which he finds himself in agreement—for example, the criticism of the "innervation feeling" theory, and the assertion of the physiological unity of sensation and movement. But he finds that Münsterberg "eliminates altogether the notion of action or activity". "There is a series of happenings somehow passing before us, but no real activity, no real actor in the whole affair. In all so-called action, we only seem to act; a sequence of ideas exhausts the phenomena of will. . . . There results, in fact . . . the doctrine of conscious automatism in the most unqualified sense of the words" (94).

Mr. Seth's direct reply to the theory which he expounds in this way is that it "is in the strictest sense incredible; no amount of so-called 'evidence' in its favour would avail to make it even mo-

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mentarily believable " (95). It is perhaps fortunate that this form of reply is not developed at any length; for its value must always depend upon the nature of the obstacles which hinder our belief. All scientific results are in a sense " incredible ". They cannot be imagined, that is to say, without training and effort. To some minds the doctrine of " conscious automatism " is not less credible than the cell theory. But Mr. Seth's real criticism of the theory in question consists in connecting it with a " fundamental prejudice, by which the analysis is vitiated from the outset. This prejudice may be called Phenomenalism, or perhaps best Presentationism. . . . If we insist upon phenomenalising the act of will, doubtless all the *phenomena* in the case are the ideas that preside and the perceptions that follow, with perhaps some feelings of tension in the head thrown in " (95). In fact, " to ask to know the will as a presentation is to ask to know it *as it is not*. The phenomena which Münsterberg offers us are very likely all the phenomena in the case, or if there are more, the others are like unto them " (113). In the analysis of volition into presentations " the real fact of volition is necessarily dropped " (96). The phenomenalist account of will depends upon two assumptions—that " sensation is the sole element of all psychical phenomena " and that " the will is only a phenomenon in consciousness " (98). But " to resolve the fact of conscious experience into a sequence of presentations or conscious phenomena is to omit the vital characteristic of all consciousness " (99); and " feeling and will are inexpugnable and irreducible features of experience " (101). Mr. Seth lays special stress on the part played by feeling in the development of experience, in which he finds it to be the fundamental and determining element. He criticises the relevancy of the attempt which physiology makes to give a mechanical interpretation of organic phenomena; and he argues that " volition is the action of a subject, and as such it cannot be phenomenalised " (113).

Mr. Seth, therefore, enlarges the scope of his criticism and applies it to " Presentationism " or " Phenomenalism " in general. Admitting that we cannot " *know* the fact of our volitional activity " (115) by presentations, he adopts Berkeley's distinction between " notions " and " ideas," and contends that though activity cannot be phenomenalised, yet only through it do we " lay hold upon reality and have immediate assurance of it " (118). We know activity, as it were, " by its works ".

In fact " knowledge, in its very nature, brings with it a species of foreignness " (119). There is no complete identity of subject and object. Even in the case of introspection, " knowing and being are not identical, they cannot help being different " (120). If, therefore, we reduce experience wholly to knowledge, it is impossible to explain how we have access to reality. " It is not in knowledge . . . as such, but in feeling and action, that reality is given " (123); if knowledge were not essentially personal and an activity it would bring us into no relation with reality. The validity of knowledge,

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the existence of an end for human conduct, and the possibility of a teleological interpretation of reality are all at stake in the question whether there be real activity or not.

This criticism of Münsterberg's psychology deserves the attention which it has already commanded; and its publication in the present volume will doubtless extend its influence.

The general statement of the inadequacy of the psychological account of experience is peculiarly clear and impressive; and the criticism of Münsterberg's account of the will gives prominence to the fact that it is in the theory of volition that psychology falls most obviously short of complete truth. On the other hand, surely the *Willenshandlung* is something more than an "ingenious caricature," although it may perhaps be wiser to accept Münsterberg's account of it, as the product of a "harmlose Jünglingszeit," than to make it the scapegoat of modern psychology. In particular, it may be suggested that Münsterberg himself would probably not describe his theory as a denial of activity. It is a denial of mental activity only if the mind be conceived in independence of the organic process. But Münsterberg's contention is that the mental and the organic process are fundamentally related, and that the real activity belongs to the unity which they constitute rather than to either of them conceived in a fictitious independence. It must be admitted, however, that the order of his exposition and the unhappy phrase 'Begleiterscheinung' lead very naturally to the quite opposite view that consciousness is an independent spectator of organic changes with which it has otherwise no concern.

The inadequacy of pyschology as an account of experience and the special incompatibility of the doctrine of 'conscious automatism' with human activity and all that belongs to it are clearly and vigorously set forth in Mr. Seth's brilliant Essay. On the other hand, I am unable to join in his general condemnation of the "phenomenalist" or "presentationist" tendency of contemporary psychology. Undoubtedly the use of this method of explanation has been discredited by its alliance with the fictions of sensationalism. But sensationalism is only necessary to a phenomenalist psychology which seeks to complete its analysis by referring to hypothetical units of 'sensation' what really belongs to the integrity of consciousness with organic conditions; and, apart from this 'sensation' prejudice, by which the method of psychological explanation that adopts it is inevitably vitiated, phenomenalism, as it appears to me, is the essential method of psychology. No doubt, as Mr. Seth urges, the abstraction which is involved in this way of regarding experience is fatal to its claims to furnish a complete explanation; and it is as really, though less obviously, fatal to a true account of knowledge as of feeling or volition. Yet abstraction is essential to every scientific development of ordinary experience, and should, indeed, mean no more than the convenient habit of talking about one thing at a time. It is highly essential to remember that the account of things which is obtained in this way is radically

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incomplete, and especially that it gives no explanation of them; and because this is apt to be forgotten in the case of psychology, Mr. Seth's trenchant criticism of the phenomenal account of volition is as important as it is effective. But, as long as its limits are not forgotten, that study of the relations of phenomena to each other which science undertakes need not be set aside as valueless in the case of psychology any more than in that of any other science of facts. It has at least a practical use. It enables us to predict and to modify the sequence of phenomena. It has a function which is not discharged by that teleological interpretation of experience which constitutes the ultimate explanation of it; and the abstraction which is fatal to complete explanation is essential to that understanding of things which enables us to follow their changes and to turn them to practical account. In so far, however, as a science of this sort is to be attempted, it must inevitably be phenomenal—a study of the relations of phenomena to one another. As Mr. Seth himself says, "Natural explanations—*i.e.*, regulated sequences and co-existences of phenomena—are what every science has to seek in its own sphere; and, accordingly, science justly regards as suspect the explanation of any phenomenon by the immediate causality of a metaphysical agent. The interjection of such a causality into the empirical connexions which she seeks to unravel, she treats as a form of *ignava ratio*" (67). Psychology, as distinct from metaphysics, is essentially concerned with the relation of phenomena to one another.

The Essay which comes next in order, on "A New Theory of the Absolute," is probably the most important in the volume. It is a critical study of Mr. Bradley's *Appearance and Reality*—which Mr. Seth considers to be "the most important metaphysical work which has appeared in England since the publication of Green's *Introduction to Hume* in 1874" (129), and "to mark the close of the period whose beginning was signalised, twenty-three years ago, by the publication of Green's work already mentioned" (132). Mr. Seth, while recognising Mr. Bradley's assertion of the fundamental unity of reality, and of the imperfection of all knowledge which neglects this unity, finds that Mr. Bradley's "condemnation of phenomena" is the consequence of a method of criticism which implies "the complete discrepancy of the One and the Many—the impossibility of realising at all in thought any kind of identity in diversity" (150). Such a preconception, Mr. Seth points out, is fatal to Mr. Bradley's attempt to give content to the idea of the Absolute, and reduces it to a mere "undifferentiated unity". Further, it implies an idea of predication, which, if it were adopted, would make all speech unmeaning, and which misinterprets the law of identity as non-contradiction. That law, which really means only that in reasoning the terms that are used must retain an identical sense, is taken to mean "the impossibility of a thing existing as the unity of diverse qualities"; and this interpretation of it rests on an "illegitimate extension to reality or experience of



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a law which holds true only of concepts as concepts" (158). In point of fact—and the question is one of fact—"unity in multiplicity, identity in diversity, is just the ultimate nature of universal experience" (163); and instead of being made a separate and unintelligible contradiction this unity of differences ought to be made the very measure of intelligibility. "The thing and its qualities is a mere analogue of the self as a many in one; all our terms of explanation, all the categories of thought are drawn, in like manner, from the life of the self" (163). It follows from Mr. Bradley's condemnation of this essential character of experience that, when he comes to consider 'reality' as distinct from 'appearance,' his idea of it is imperilled by the abstract logic which he has adopted; and, though he does not abandon the attempt to conceive the Absolute as unity which retains in itself differences and distinctions, "that line of thought is more than neutralised by the Spinozistic or Schellingian tendency" (169). It is this tendency that leads Mr. Bradley to assert the impossibility of truth—on the ground that truth is never all reality and that the distinction of subject and predicate which is essential to knowledge is fatal to truth. Mr. Seth excuses this agnostic attitude as an affirmation that experience or reality is more than knowledge; but he points out that Mr. Bradley's rejection of the unity of differences, which experience offers, commits him to an idea of the Absolute which makes it less than the least of experiences. Speculation which repudiates the form of knowledge makes absolute truth a complete emptiness; and it is the object of Mr. Seth's criticism to show that Mr. Bradley's attempt to conceive the Absolute in a more real way succeeds only in proportion as he evades the difficulties which are created by his criticism of experience. He is able to conceive it as a unity of difference by declaring that it is this "*somehow*" and disregarding the demands of his own assertion that "the question is *how?*" Mr. Seth admits, however, the existence and importance in Mr. Bradley's work of another way of thinking, in which "Mr. Bradley stands much more closely under the influence of Hegel" (192). This line of thought finds in appearances our only clue to the nature of the Absolute, while the doctrine of degrees of truth which finds in appearances "a graded or hierarchical system" guides an interpretation of appearances by which the world can be shown to realise an absolute principle. But this idea of the Absolute is not consistently maintained; and Mr. Bradley wavers between the pantheism and the agnosticism from which he endeavours to deliver philosophy. "The Hegelian passages have the air of being more or less inconsequent disclaimers in a book which, as a whole, expresses an essentially Brahmanic attitude of mind" (201).

It is naturally of peculiar interest to turn to Mr. Seth's appreciation of his author's positive service to philosophical discussion. He finds this service first in Mr. Bradley's realisation that "Life

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is more than logic, and God is more than man. The categories—that is to say, the structure of reason—may be said to constitute the essence of God, the ground-plan of the world; we can understand such a statement and recognise the truth it expresses. But 'neither Gods nor men are in very truth logical categories'. And, again, God is in history without doubt; but yet we trust He has a richer outlook than He enjoys through any pair of human eyes" (204). Mr. Bradley recalls philosophy from a narrow humanism and rationalism to a true insight into that absolute life in the universe which does not depend for its reality on human self-consciousness. The value of this recall, however, is impaired by the way in which Mr. Bradley gives effect to it. He refuses to interpret the Absolute in terms of human thought; but his wish to give it a richer meaning issues in an attempt to characterise it in terms of that which is not more but less adequate than the thought which he rejects. For feeling, which is Mr. Bradley's analogy for the life of the Absolute, is in itself no less partial and ambiguous than thought; and, while it is a real element in experience, its realisation is a function of thought, and it cannot itself furnish any positive account of ultimate reality. In fact, experience is the only reality for us; and whether we attempt to characterise reality by falling below it or by going beyond it, our departure from our proper sphere leads to an outer darkness. Mr. Seth's conclusion is "that the attempt, metaphysically, scientifically, or literally to determine the Absolute as such, is necessarily barren"; and, he adds, "both religion and the higher poetry—just because they give up the pretence of an impossible exactitude—carry us, I cannot doubt, nearer to the meaning of the world than the formulæ of an abstract metaphysic" (220). It is impossible not to wish that this most serious declaration, which Mr. Seth makes very prominent, had been more fully explained. Taken as it stands it forms a rather embarrassing conclusion to a metaphysical discussion. The consciousness which is expressed in art and religion is the source and problem of speculation; but in itself it yields no speculative result. It is essentially experience and not explanation. That "the fear of the Lord is the beginning of wisdom" cannot absolve philosophy from its endless task; and Mr. Seth can hardly be suspected of asking us to compare or choose between philosophy and religious experience. He seems rather to suggest that a philosophy of experience should be substituted for abstract speculation, and that the interpretation of experience should test its varying degrees of truth by making human ideals an absolute criterion. But this is not the direct meaning of the statement quoted.

This is a suggestion which is further developed in the Essay on "Mr. Balfour and his Critics". After commenting upon the singular division of opinion which Mr. Balfour's *Foundations of Belief* evoked, Mr. Seth points out the "limited and hypothetical character" of the scepticism of Mr. Balfour's later as contrasted with his earlier volume; and he explains the appearance of a more

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determined scepticism as the result of an unfortunate choice of words. The question of Mr. Balfour's terminology has already been pretty fully discussed; and Mr. Seth is inclined rather to explain and excuse than to defend it. Yet a less sympathetic critic might have hesitated to explain the misuse of words so important as "reason" and "authority" as Mr. Seth does. "Delight of battle" (240), and "love of mischief" (283) are amusing enough motives. But a philosophical book in which they play a leading part becomes something of a practical joke; and one may hope that some better reason prompted the use of words which have done so much to bewilder the argument of Mr. Balfour's book. Certainly if the author meant to make mischief, a good deal of it has come his own way.

But Mr. Seth turns more seriously and with more unreserved approval to the use which Mr. Balfour makes of "the argument from needs to their satisfaction". This "is the constructive principle on which Mr. Balfour depends, and furnishes . . . the key to a true understanding of the book". Mr. Seth notes its similarity to Kant's transcendental method, and its distinction from ordinary inferential reasoning. He does not, however, suggest that it has less evidential value than any other form of proof. "If by premises . . . we understand either isolated intuitions or the particulars of sense, then it may be said that the transcendental argument neither starts from premises nor arrives at a conclusion. Yet, in a more vital sense, experience itself, as a concrete fact demanding explanation, constitutes the premise from which we advance (or rather regress) to its implied condition or explaining cause" (281). That which is an essential postulate of knowledge is proved with a conclusiveness which nothing can, in the nature of the case, go beyond.

Mr. Seth prefers the word 'postulate' to the other word 'need' which Mr. Balfour sometimes uses in the same sense; and this preference is, in a speculative interest, of the highest importance. For speculation would be at an end if the relation of beliefs to our ethical or religious needs were to determine their acceptance or rejection. In such a case nothing would remain to us but to retire in pious scepticism to the practice of the domestic virtues. It is fortunate, therefore, that Mr. Seth has been careful to define the argument from consequences as an argument not from subjective needs to the constitution of the objective world, but from experience as a whole to the reason on which it depends; for any argument from one sort of experience to another must be something of an intellectual vagrant; and the very problem of philosophy depends upon the impossibility of subordinating experiences to one another in this way. It is the apparent collision of experiences that forces us to investigate the principles or postulates which determine our experience as a whole, and to rationalise each part of it by removing its apparent and fictitious separateness. It is not therefore possible to argue directly from our needs

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to a conception of reality; but no account of reality can be accepted as final which is not an interpretation of moral as well as of cognitive experience.

Mr. Seth's volume is thus a contention on behalf of teleology. He criticises the purely mechanical interpretation of life and intelligence, and the reduction of reality to a system of abstract conceptions. His central argument is that no true interpretation of things is possible which does not present them as means to an end, and that our consciousness of ends must in the last resort determine our view of the world. Such an argument is of course rather an indication of what should be attempted than a defence of any existing interpretation of things; for teleology, like truth, "is the cry of all, but the game of only a few". Among those who believe that things are only truly understood when they are seen to realise an end, no one, it may be said, attempts a serious or complete account of things from this point of view. The necessity for such interpretation has been urged once and again—seldom with such felicity and point as in the volume before us; but the interpretation itself does not exist; for it is not furnished by mere defence or statement of moral experience, any more than by the laborious ingenuity of Paley. It must be an account of things in which their whole nature is shown to belong objectively to a rational system. The suggestion of Mr. Seth's Essays is thus critical rather than constructive. They insist upon the necessity of teleological interpretation, and they indicate certain limiting conditions which it must fulfil. They criticise current modes of explanation, and call attention to neglected aspects of experience. They do not set out to give the explanation which they demand. But it is impossible to read them without arriving at a clearer idea of the nature of philosophical interpretation and of the relation to it of the important books which Mr. Seth has selected for criticism.

CHARLES DOUGLAS.

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*Essai Critique sur l'Esthétique de Kant.* Par VICTOR BASCH, Docteur ès Lettres: Paris: Félix Alcan, 1896. Pp. xiv., 623.

IT is a testimony to the vitality of Kant's Æsthetic that after a century has passed it should form the occasion not only of this immense volume, but of a plan, as the author tells us, including three more volumes, presumably on the same scale. For besides the present examination of Kant's doctrine, the author proposes to produce, in separate works, a study of its genesis, an exposition of its completed form, and an account of the systems which have sprung from it. One could almost think that the exposition at least is superfluous, in addition to the criticism now before us.

M. Basch takes his problem on the grand scale. He treats the

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general theory of Feeling and of Judgment at considerable length before settling down to the more intimate criticism of Kant's æsthetic as involving these theories. The general question of Kant's method of discovery, as briefly treated in the first chapter, is also, it might be urged, of a purely introductory character. The author's point in it is that Kant's *a priori* method is probably not valid at all, but in any case is not valid for beauty, which ought not to be treated in a way simply parallel to the treatment of knowledge and morality. The elaborate studies of feeling and of judgment which follow seem not to give results adequate to their extent, so far as any special bearing on æsthetic is concerned. After scrutinising many theories of feeling the author approves the teleological evolutionary view, and also strongly asserts the originality of feeling in mental life. He seems anxious to avoid the subordination of feeling to judgment, and to pave the way for the reinstatement of the agreeable of sense as an element of the beautiful. In the study of judgment there is a similar discursiveness. Is Judgment necessarily subsumptive, and should the Reflective Judgment have been treated as subsumptive and not rather as Inductive? Now, does all this really matter, for Kant's æsthetic theory? And is not the development of Kant's thought from the "Critique of Pure Reason" to the "Critique of Judgment" pretty much common ground at the present day?

In the fourth chapter we arrive at a specific treatment of Kant's theory of the judgment of taste, which is followed from its primary form as immediate, through the well-known development in which it acquires content and substance by what the author refers to as Kant's "turning movement". All the steps of this development are distinctly appreciated by the author, but appear to him, nevertheless, as extensions to which for one reason or another Kant has no real right. Kant's æsthetic judgment unites the characteristics of knowledge and feeling, and this union, as illustrated by all the paradoxes and contradictions attaching to the judgment in question, as, for example, in the problem as to whether the feeling or the judgment comes first, is for M. Basch simply impossible.

"Un jugement qui doit être à la fois, *en même temps, zugleich*, un sentir et une règle des facultés supérieures de connaître, nous a semblé inadmissible, parceque contradictoire en soi." It is needless to state all the details throughout which this attitude is maintained. The conclusion is that universality and necessity, if really to be retained, involve intellectualism, and Kant falls back to Leibnitz, abandoning the pre-eminence which he had seemed to assign to feeling.

The following chapter deals at immense length (it fills more than 170 pages) with æsthetic feeling, both as described by Kant, and as explained by the author. To begin with, the various degrees or phases of the æsthetic sentiment as portrayed by Kant are discriminated as a series of sentiments which he has erred by identifying. The most elementary of these, we are surprised to

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find, is set down as the agreeable of sense; not that M. Basch ignores Kant's exclusion of this factor from æsthetic appreciation, but that he thinks himself justified in proving, from Kant's view of intuition, that the "apprehension of form" can mean nothing except by including the perception of the sensuous manifold. I mention this argument, because it seems to me only too characteristic of a certain literal way of proceeding which the author follows throughout. The series of types of sentiment which he finds in Kant's æsthetic emotion is constructed by inferential criticism of this kind; every characteristic imputed by Kant in his progressive analysis to the æsthetic attitude of mind being represented as a different kind of æsthetic emotion. Having thus separated the factors of æsthetic feeling, the critic proceeds to raise the question whether they can all be united in the single type of emotion attendant on the harmonious operation of imagination and understanding. One ground which plays a part in his negative decision is noteworthy. It is, that if this—which he reduces to the appreciation of unity in variety—were the sole type of æsthetic enjoyment, every presentation and every form would have to be accepted as beautiful. It does not occur to him that, under the reservations which the principle itself would impose, this result might be defensible.

The rejection of Kant's analysis brings us to the author's own account of the factors which enter into æsthetic feeling. They are three: the agreeable of sense, as the consciousness of a maximum of stimulation with a minimum of fatigue; the intellectual enjoyment of the union of a manifold; and the associated feelings of pleasure.

The introduction of the first of these factors raises the whole problem of æsthetic interest. M. Basch objects, on grounds which are probably valid as Kant's views literally stand, to both of the explanations by which Kant has attempted to harmonise the phenomena of sensuous beauty with his theory of æsthetic form—the notion of a sub-consciousness of numerical law, and the notion of purity. Yet for all that, Kant's suggestions very probably point to a true principle, and it might be urged that the explanation which his critic suggests here and expounds later amounts in sum to much the same as that of Kant. Either—we might say in M. Basch's style—the pleasure of sense is a pleasure in its own right, simply as felt, and without sophistication; and then what is gained by adding that it is—*i.e.* implies or rests upon—a certain relation of stimulation to fatigue? or it is touched with a consciousness of embodiment of law, adequate response to stimulus, harmony of function, or the like; and if so, then why not apply Kant's principle of form to M. Basch's explanation?

In discussing this whole problem of form and the correlative question of interest, M. Basch once more seems to be too much hampered by mere terminology. The celebrated definition of "interest" as "pleasure in the idea (Vorstellung) of the existence

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of an object," as distinguished from that pleasure in the pure form which alone is æsthetic, seems to him too uncompromising. Surely, he argues, there is a love of beauty, an interest in beautiful things, as appealing to us in some way, as satisfying some need of our nature? No doubt, but this is not what Kant calls an interest, *i.e.*, a partiality founded on an inclination which appeals to us as particular sentient or appetitive animals, and not through our universal nature. A universal or rational interest is a disinterested interest, and this Kant wishes to distinguish from a partiality founded on a particular inclination. The mode of expression which Kant has chosen for this distinction is no doubt open to criticism. What is the difference between the idea of the existence of an object, and that presentation of the object which is valued for itself, or for its form alone? M. Basch seems to treat it, so far as valid, as simply standing for the distinction between the "lower" and the "higher" senses. And no doubt this is roughly true; but the principle involved demands examination. That is to say, if the pleasant sensations of eye and ear are beautiful, and the pleasant sensations of taste, smell, softness, warmth, or repose, are not beautiful, are the former felt or appreciated in a way in which the latter are not? Or if both kinds are just pleasurably toned sensations of sense, how is it possible to justify a distinction between them as one of principle? It is much more probable that some continuity of character exists between the two classes. The fact is, perhaps, that the "existence" for practical purposes, which Kant has in mind in his definition of interest, always implies something not presented, perhaps not capable of being presented. The object is contemplated as a means, and as a means to something which is at its root a mere stimulus to, or intensification of, vital feeling in a particular animal mind. But, in so far as general elements of content are discriminated along with the aim at such an existence, they, it might be suggested, are capable of constituting "form"; that is to say, a complex presentation, the harmony, contrasts, and symbolism of which can be accepted by the mind with disinterested interest. I doubt *e.g.* if the total absence of æsthetic quality in taste (gustatory sensations) can be theoretically maintained. And then the relations of the lower and the higher senses would merely be that the "lower" were more apt, from the limitation of their sphere, to be connected with mere "existence" —undefinable relation to desire; while the higher are more apt to present relations of "form," *i.e.* organised contents carrying an import and general interest of their own. But neither character would be in principle confined to either group. It is worth noting that on this view "existence" comes to mean almost nothing at all; nothing, that is, explicit or definable; while form or "appearance" tends to coincide with the reality of things—what they are in themselves or for disinterested perception.

Although M. Basch may seem in this part of his argument in-

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different to the unity of the æsthetic sentiment, yet in his own very interesting theory he suggests that it has a common or predominant character, namely, that of sympathy. This term must indeed be understood in a wide sense to meet the demands which he makes upon it. He is following, in fact, Vischer's conception of *Einfühlung* or Groos' of "Imitation intérieure"; and it is very noteworthy that he applies these ideas to the question of the mode in which pleasurable sensations are invested with æsthetic quality. Besides this factor, he maintains indeed that there is a slight element of pleasure from the normal exercise of the nerves concerned in perception; but this, he explains, is altogether inadequate to account for the occurrence of æsthetic feeling in connexion with sense-perception. The really operative factor is "symbolic sympathy," by which our nervous system responds as a whole to the stimuli of the external world; and not only is it so *de facto*, but we are in some degree aware of it, and "feel ourselves into" the colours and sounds which we enjoy, lending them a sort of personality, and divining in them a pre-established harmony between the world and our physical organisation. It is, M. Basch observes, an expansion of Kant's idea of harmony between imagination and understanding. But is it not plain that the relation which M. Basch relies on is either merely *de facto*, and thus might be extended, say, to the actual relation by which our food nourishes us; or is somehow specially conveyed and reinforced for consciousness by the pleasurable feelings in question, and thus has surely gone beyond the agreeable of sense? Have we not here one of those very significant cases—and at this point M. Basch's alliance with M. Tarde is suggestive—where the protesting empiricist, who sees no cogency in the traditional idealism which confronts him, is beginning under stress of facts to say the same things over again in other formulæ? The serious critic of Idealism or *a priorism* should always be carefully watched when he begins to construct, and to commit himself to distinctions between what is and what is not of general value.

The rejection of universality and necessity with which the present chapter closes, is therefore no very important matter. It belongs to the half-hearted attitude natural to this phase of empiricism. To argue from the variations of individual taste against the universality implied in the æsthetic judgment seems like arguing from individual errors against the universality implied in the logical judgment. On this head it is difficult to avoid accusing M. Basch of inadequate philosophical acumen.

The two remaining chapters deal with the nature of fine art, the classification of the arts, and the modifications of the beautiful.

It is surprising to find that M. Basch adheres to the opinion, apparently expressed by Cohen, with whose work I am not acquainted, that Kant's theory of Art is not a part of his theory of Beauty. Can the critics who judge in this way have really considered the profoundly suggestive section of the *Kritik d. Urtheils-*

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*kraft*, "Schöne Kunst ist die Kunst, so ferne sie zugleich Natur zu seyn scheint"? It was from the connexion of Nature and Fine Art, explained in this section, and subsequently carried out in the conception of artistic genius, that the deepest thoughts of Schiller, Schelling, and Hegel, in this province of philosophy, were to spring. It is strange that M. Basch, on the same page on which he asks with *a priori* rhetoric whether it is likely that the orderly sage of Königsberg should have genuinely understood the tempestuous mind of the artist, displays his inability to enter into Kant's profound appreciation of the magical unity with nature, the gift which is the artist's truest self and yet is something greater than he, which is therefore called his "genius," or familiar spirit. Here is no question of misplaced modesty, as the critic imagines, no idle speculation as to whether Newton or Homer stands higher in the ranks of the immortals, but a psychological observation of great acuteness on the difference between the methodical march of the disciplined intelligence in science, and the unconscious or natural creativeness—the "legality without law"—which belongs to the poetic imagination.

The writer's own theory of fine art is founded on his conception of æsthetic feeling as sympathetic, together with the psychology of emotion as demanding expression, and with M. Tarde's account of the laws of imitation. He concludes, then, that art is the idealising imitation of reality, or of nature. Like too many modern writers, he is unacquainted with the true nature of Aristotle's views on imitation; and largely for this reason he devotes no study to the all-important question "*of what* is fine art an imitation or representation?" The weak compromise which treats it as the idealising imitation of given actuality comes therefore naturally to his assistance. We are not surprised to find that the classification of the arts is founded for him not on the expressive capacity of media with reference to the content of life, but on the current psychological division of the types of sensuous imagination into visual, audile, and motile.

As regards the modifications of æsthetic feeling, the author, following Kant, touches on the sublime and the comic. In the theory of the sublime he principally objects to Kant's introduction of the idea of the infinite and the sort of opposition which his theory presupposes between nature and the mind. The author insists rather on the aspect of identification; we appropriate, rather than rise superior to, the forces of nature or of the human will at its highest, and become conscious in them of something kindred to ourselves. The "act of identification" is the root of sublimity as of beauty. Is not this Kant's view, with the terms a little dislocated? It is not our ordinary self that we assert in the feeling of sublimity; so much is admitted; and again, the mere sensuous appearance of nature is not that with which we identify ourselves; it is something which we grasp in and by reason of the natural appearance or human phenomenon before us, and which

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takes us out of ourselves and into the inmost heart of reality. This seems to be what both Kant and his critic essentially mean. In the case of the comic, M. Basch appreciates the value of Kant's principle of contrast, and only suggests that it is really a mistake to look for a single principle in all possible kinds of the laughable. Now of course discrimination is a necessary part of science; but to suggest without motive, and *a priori*, a probable difference of causes for an effect which, as stated, is the same, seems hardly a scientific attitude. It is time enough to distinguish causes when a motived discrimination of sequences suggests itself.

On one important matter of principle the author, who is throughout well aware of the contradictions in Kant's point of view, seems to espouse the weaker side. He knows that Kant's view of the subjectivity of beauty really tends to make way for a conception of it as practically objective. But following the empirical bent, which causes him at all points to deny the more rational characters of the æsthetic attitude, though he has an instrument in his view of symbolic sympathy which is capable of opening to him the very arcana of idealism, he decides for the purely subjective character of the beautiful. There is a demand of reason, he allows, for objectivity—conceived by the author, infelicitously, as an objectivity of causes in contrast with impressions—but it is a demand which cannot be satisfied. He sides, indeed, strangely enough, with the ultra-Kantian attitude which acquiesces in the "ought" instead of endeavouring to indicate the steps of realisation.

Thus, throughout this elaborate and suggestive criticism of Kant, the philosophical student is assailed by a certain impatience. Kant, he feels, was attempting to describe and explain the peculiar features of a certain experience. It is known, to begin with, that he described them by means of paradoxes and apparent contradictions, and that his explanation became deeper, and more imbued with content and import, as his work progressed. In view of a writing whose essential character is of this kind, the critic ought not to proceed like a man who is carping at the statement of a riddle without knowing the answer. Of course, if the statement is really self-contradictory, the answer cannot be justifiable. But it is hard to be sure of this till you have seen the answer; and when it is laid before you, to continue demolishing the statement seems a fault of method. M. Basch makes great use of the "Either—or". But the heart and point of Kant's conception is that to the unique experience known as the æsthetic feeling or judgment, these particular "Either—or's" do not apply. And we can hardly feel, after going through the huge volume before us, that this simple question has really been faced. "Is there a kind of experience which forms the meeting-point of reason and feeling? and if there is, supposing Kant's description to be ill-phrased or ill-connected, how should it be rectified?" Hegel's treatment of Kant's position in the Introduction to the lectures on Æsthetic may be too easy-going, as M. Basch's

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may be too contentious. But one would like to see the relation between them thoroughly dealt with. Admitting the general criticism of Kant's "turning movement" as common ground and as fairly stated by M. Basch, for the rest, I think, we must reverse in this case the usual verdict on a work both critical and constructive. The criticism, in this case, does not seem helpful, because the author has not apprehended the nature of the experience which Kant was trying to express; not, at least, through the forms by which Kant tried to express it. But the constructive work seems valuable, and indeed seems to furnish the true criticism, for here the author is endeavouring to re-express, from his own standpoint and in modes natural to him, the thoughts which he has not greatly assisted us in recognising within Kant's curious formulæ. But at least it is a fine thing to have devoted a great study to a great work; and students will find more suggestion in M. Basch's volume than there has been space to indicate.

B. Bosanquet.

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*The State and the Individual.* An Introduction to Political Science with special reference to Socialistic and Individualistic Theories. By William Sharp M'Kechnie, Lecturer on Constitutional Law and History in the University of Glasgow. Glasgow: James MacLehose & Sons, 1896. Pp. 451.

It is a noteworthy fact that during the last two decades or so the attention of students of political science has been more and more concentrated on the work or functions of the state. From the time of the French Revolution till about the third quarter of the present century the bulk of speculative political thinking was concerned not so much with the functions as with the structure of the state. The questions uppermost in the minds of political thinkers were in the main questions of a constitutional character: questions relating to the various organs of government: the manner in which these organs of government should be constituted and the relationship in which they should stand to each other. All this is now changed. Constitutional questions,—questions affecting the structure of the state, have ceased to occupy a foremost place in the minds of political thinkers. A conclusive proof of this is the scantiness of the literature on constitutional subjects in recent years. With the exception of the late Prof. Roscher's *Politik* published in 1892 and Dr. Sidgwick's *Elements of Politics* published the year before (and which I am glad to see has reached a second edition), hardly a single work of first-class importance dealing with the structure of government has issued from the press. It is very significant that in a large dictionary like Conrad's *Handwoerterbuch der Staatswissenschaften* the word State does not even have an article devoted to it. It is true that

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this defect has been to some extent remedied in the Supplement; but Prof. Wagner's article on the subject only deals with the state in its economic aspect: it deals with its functions and not with its structure.

What is the reason or rather what are the reasons which have led contemporary political thinkers to change their point of view —to relegate the structure of the state to a secondary position and to devote all their energies to a consideration of its functions? It is probable that one of the reasons the old subjects of political speculation have temporarily lost their interest is to be found in the fact that the ideas of political thinkers on those subjects have in the main become embodied in Western European systems of government. Western Europe as well as the New World is now in possession of a constitutional system of government, with representative chambers and a more or less democratic method of electing parliamentary representatives. In this system we see the fundamental ideas of the vast body of thinkers on constitutional questions brought into practice. The structure of the state is reconstituted more or less in accordance with their ideas. The writer on constitutional politics has got a political structure of the kind he wanted; his subject has accordingly become one of secondary interest, although signs are not wanting that it will again step to the front. Perhaps another cause of the decay of constitutional politics and the rise of social politics is to be in part attributed to the circumstance that the *nouvelles couches sociales* (in Gambetta's phrase) are indifferent to forms of government, and only interested in what government can do, or what they believe it can do on their behalf. In other words this new social stratum (now invested with a preponderating share of political power as far as numbers go) is apparently more anxious to work the machine of state than to alter its structure. It is interested in social politics and not in constitutional politics; it is interested in the functions and not in the structure of the state. This fact imparts supreme practical importance to all discussions dealing with the sphere and limits of state action and state intervention. It may also be remarked that the decay of constitutional politics and the rise of social politics has had a very curious effect on political parties. In the past, political parties have in the main been divided on questions of constitutional politics. These questions have either been settled or have receded into the background. The result is that the old dividing line between parties has been almost obliterated. New dividing lines on questions of social politics have not yet been formed. The old historic parties have no coherent body of socio-political principles. Vague phrases about the amelioration of social conditions are about all they are able to utter. As to the methods by which this amelioration is to be effected and as to the part which the state is to play in the matter there is no widely organised body of opinion.

It is facts of this character which give opportuneness to Mr.

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M'Kechnie's book. Mr. M'Kechnie takes up an intermediate position between the individualist and the socialist as to the functions of the state. He does not believe in *laissez faire* and he does not believe in collectivism. As far as regards the functions of the state he describes himself as a believer in "indirect government control" as opposed to direct government management. He believes that the key-stone to a system of practical politics is to be found in a system of indirect government control. He believes that the moderate socialist and the moderate individualist can meet on this platform. The formulation of a system of practical politics based upon the principle of indirect government management is, Mr. M'Kechnie tells us, the only claim to originality which his book possesses. Mr. M'Kechnie develops this principle in a chapter on the methods of state intervention. State intervention takes three forms: state ownership, state administration or regimentation, and legislative control. State ownership is another term for socialism; it involves the abolition of private property and it turns the state into a terrestrial providence. The impracticability of such a sweeping system of state intervention is pointed out by a reproduction of the arguments most commonly used in opposition to socialistic theories. State administration is a more modified form of state intervention. It means an extension of the sphere of bureaucratic interference. In practice it would mean an application of German methods of government. Mr. M'Kechnie discusses the objections to this method of state interference and considers them fatal to it. A third and minor degree of government interference remains open—that is, legislative control. I cannot say that Mr. M'Kechnie clearly distinguishes between the form of interference which he describes as government administration, and legislative control. In fact it is doubtful if the terms he has selected are happily chosen to express his meaning. This meaning as I gather it is that state enactments leaving to the individual the initiative of enforcing them are a better form of state interference than direct enforcement of them by a bureaucracy. State interference based on enactments depending on individual initiative for their force is probably in most instances the least objectionable method of interference. Unfortunately there are a large number of cases in which it cannot be applied. The classes which most need the protection of the state, such as the workman, the woman and the child, are the very classes least able to put enactments into force. Either they do not know of the existence of these enactments or they are too weak and dependent or perhaps too poor to put the law in motion which would protect them.

My own view is that in practice state interference cannot be confined to one method of procedure. Sometimes it must be applied in the form of enactments which leave the initiative to the individual; sometimes it must be applied in a form which places the initiative in the hands of a bureaucracy; and sometimes

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in a form which transfers private ownership into public ownership. When a conclusive case has been made out for state interference the form which that interference shall assume must depend upon circumstances. But it may be laid down as a principle that the least aggressive form of interference should always be adopted provided it will fulfil the purposes in view.

Before concluding this notice of Mr. M'Kechnie's able and interesting book I will venture to remark that he would have improved it in several particulars if he had stuck more closely to inductive methods. He tells us, for example, that free education stimulates over-population. This statement is based on the ground that free education diminishes parental responsibility. If Mr. M'Kechnie had referred to facts instead of remaining in the region of high ethical considerations he would have found that the birth rate has not increased as a result of free education. In France primary education is everywhere gratuitous. But the adoption of this system has had no effect whatever in increasing the birth rate of the French population. In fact since the adoption of free education in France the birth rate has on the whole steadily tended to decline. If we examine the birth rate in England it will also be found that the adoption of free education has had no effect whatever in increasing the annual ratio of births. On the contrary it is at present the lowest on record. The birth rate depends chiefly on the standard of life. Where the standard of life is low as in Russia the birth rate is high: where the standard of life is high as in Western Europe and the Eastern States of America the birth rate is low. In so far as free education has the effect of raising the standard of life among sections of the population which have the highest birth rate, it has the effect of diminishing the danger of over-population instead of increasing it. I am not concerned to say whether free education is a good thing or a bad thing. All I am anxious to point out is that it cannot be proved to be a bad thing by assuming on *a priori* grounds that it must inevitably tend to a reckless increase of the population. In more than one passage in his book Mr. M'Kechnie is at pains to dissociate himself from the utilitarian school of political thinkers. This school may have its defects. But at any rate it has the supreme merit of exhibiting a profound respect for facts. In investigating social phenomena, we constantly find that facts confound the most plausible presumptions. These presumptions should be resorted to as sparingly as possible in all discussions relating to political affairs, and not at all when facts are available.

W. D. MORRISON.

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# VIII.—NEW BOOKS.

*Roger Bacon.* The *Opus Majus* of Roger Bacon, edited with Introduction and Analytical Table by JOHN HENRY BRIDGES, in two volumes. Oxford: Clarendon Press. Pp. clxxxvii., 404, 568. With the editor's fly-leaf referring to the interesting document discovered in the Vatican Library by Dr. Gasquet and published by him in the *English Historical Review*, July, 1897, pp. 494-517.

THE earlier edition of the *Opus Majus*, by Jebb, left much to be desired as respects perfect intelligence of the text, and by its omission of the highly important Seventh Part, on Moral Philosophy, rendered obscure the general plan of the whole work. Dr. Bridges now offers a revision of the text of such part as Jebb had published, and prints for the first time what so far has been discovered of the closing section of the work. He has also excluded from the body of the *Opus Majus* the important tractate *De Multiplicatione Specierum*, though giving it a place in his volumes (ii., pp. 465-552). By shoulder-headings to the several paragraphs and by a most careful and laborious analytical summary (vol. i., pp. xciii.-clxxxvii.) the editor has also facilitated the study of Bacon's voluminous work and made it more possible than before to gain a connected idea of its leading ideas, plan and development. The editor's Preface and Introduction give some account of the MS. sources utilised for the work and a general statement of the place and significance of the *Opus Majus* in the history of human thought.

The text here offered, if judged from the point of view of the reader who desires and expects to be able to understand its several sentences, is a distinct improvement on that of Jebb, which contained an undue number of what Bacon called 'horrible difficulties' in the case of translations from Aristotle. Yet from the same point of view the present text is still open to adverse criticism, and still offers to the reader perplexities which he has no means of resolving. It is possible that some of these may be inherent in the MSS.; for there is no reason to suppose that the transcribers of Bacon's writings were immaculate; it is probable that some of them might yield to careful collation of the existing MSS., and to comparison of those of the *Opus Majus* with other writings of Bacon; it is certain that some of them might have been avoided by keeping constantly in view what is already extant, in printed form, of Bacon's writings. The editor has not, we are inclined to think, carried out a sufficiently continuous comparison of his text with the *Opera Inedita* published by Brewer in 1859, and with the abundant excerpts from other MS. writings contained in Charles' monograph of 1862, a work to which the editor pays a just tribute of admiration. *E.g.* a comparison of *Op. In.*, p. 447, with what he has printed at the foot of i., p. 86, would have cleared up what is there incomprehensible; a similar comparison with *Op. In.*, 310, 396, 48, and Charles, 365 (see also *His. Rev.*, as above, p.

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509), would have enabled him to avoid a serious confusion in the words 'metaphysica' and 'mathematicis'. On the whole, indeed, judging from merely internal grounds, one would doubt whether a completely satisfactory and final text of the *Opus Majus* has yet been supplied.

Roger Bacon was evidently an omnivorous student; he pours forth a very flood of references and quotations. As the *Opus Majus* was written with extraordinary speed, and as it is probable that the writer had not always at hand the books he refers to, or quotes from, a heavy burden is imposed upon his editor. The notes of Dr. Bridges are certainly helpful, though they have not altogether escaped the inaccuracy incident to such work, but they are far from being sufficiently numerous. Moreover, the Index, a most important factor in a work where reference plays so large a part, is quite inadequate, and a grumble may be permitted in respect to a portion of an editor's task which, however valuable, is well-nigh mechanical.

The editor's Introduction (pp. xxi.-xxxvi.) gives a brief account of the little that is known regarding Bacon's life, the circumstances which called forth his main writings, and the other works by which these were followed. In respect to the life there is probably not much more now to be known. Dr. Gasquet's 'find' supplies a few additional details as to the composition of the three writings called the *Opus Majus*, *Opus Minus*, and *Opus Tertium*, and further contains a passage of some interest in the discussion of Bacon's literary activity as a whole. Bacon tells us there that prior to entering the order he had written *propter juvenum rudimenta* a good deal which he was supposed only to have done later, that at no time had he published a completed treatise on any part of philosophy, and that during a retirement of about ten years from the more public work of teaching (for so one would interpret his phrase) he had only written a few chapters now on this, now on that science, at the instance of friends. Such writings, moreover, he did not then possess, for he did not regard them as satisfactory treatments of their subjects, and had not cared to preserve them. It would thus seem from his own accounts that all the most systematic writings of which we now possess information dated from the period of the Papal request in 1266. But as to the relation of these writings to one another, there is yet the greatest obscurity. The cross references in what we possess are as baffling as in the case of the *Corpus Aristotelicum*, and so long as the larger MSS. at all events remain unprinted, it is not likely that the many points of difficulty suggested will be settled. That the *Opus Majus* was destined for Clement we know; whether and how it was sent we do not know; and the like obscurity rests upon the history of the two connected writings, the *Opus Minus* and *Opus Tertium* as they have been called. The last of these makes such detailed, copious and minute reference to the *Opus Majus* that its relation to it is in one sense clear enough. [From the want here of any detailed reference to the parts 5 and 6 of the Moral Philosophy, and from the expressions used on p. 305 *Op. In.* (*cf.* p. 52), it might be suspected that Bacon did not finish the seventh part of the *Opus Majus*.] But it is altogether indeterminable to what extent the *Opus Tertium* has been worked over, and how far therefore our text corresponds to the original;[1] and doubtful also, as in the case of the *Opus Majus*, whether or how it was sent to Clement. As to the confusion regarding the *Opus Minus*, the general plan of which is clear enough from the *Op. Tert.*, it is only increased by Dr. Gasquet's find,

[1] *Cf.*, *e.g.*, *Op. In.*, 135, 304, where the confusion of nomenclature as to *Secundum* and *Tertium* is doubly confounded.



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for certainly it is hard not to recognise in the first pages of that fragment the exordium to the *Opus Minus* recited in the *Opus Tert.* [It is noteworthy that in this fragment there are referred to only five parts of the Moral Philosophy.]

The *Opus Majus* taken alone can give but an imperfect idea of Roger Bacon's position in the intellectual life of his time. Perhaps in the future some editor may be found for the still unprinted MSS., from which a comprehensive idea could be formed of the way in which he proposed to utilise for his purpose the instruments of scholastic thinking available for him. For with these Bacon had to work, and in default of recognition of their nature, an impression may be formed that is all too modern of his aims and ideas. Dr. Bridges has rightly seen the necessity of bringing Bacon's work into relation with its actual surroundings, the scholastic discussions of his time, but he can hardly be said to have advanced our knowledge beyond the point reached through the able and laborious monograph of Charles. On the scholastic material he expresses himself not incorrectly, but with the hesitation and limitation that betoken want of complete familiarity. Nor does his Introduction throw much light on the puzzling question of the relation between the three *Opera* so far published and the portions of the unfinished writing of which the *Communia Naturalium* seems to be the most important. On what he bases his remark (ii., p. 408 n.) "that among the copious extracts given by E. Charles from the MSS. in the Mazarine Library containing the *Communia Naturalium* of Bacon, are certain passages implying that this work was begun before 1267" is not clear to me, while on the other hand Werner in his *Psychologie, etc., des R. Bacon* (p. 18) quotes from the said *Com. Nat.* the sentence 'Partes vero sensitivæ virtutis ego posui cum omni diligentia in primo perspectivæ,' which seems to imply that the writing is later that the *Opus Majus.*

The inclusion of the Moral Philosophy has given the editor the means of defining more clearly than was before possible the general aim and leading conceptions of the *Opus Majus*, and with regard to these his view is sound and well expressed. Perhaps he might with advantage have laid stress on a point rightly adverted to by him, that the superiority of Bacon's ideas on scientific method was due mainly to his familiarity with the really progressive science of optics or of applied mathematics in which the Arab tradition worthily continued one of the fruitful lines of Post-Aristotelian work. He needlessly, in my opinion, repeats the quite groundless fable of proficiency in natural science on the part of Albertus Magnus, and I think greatly exaggerates the value of Aquinas' treatment of the concrete detail of ethics and politics. But on these points and on the general determination of Bacon's place in the history of mediæval thought, a brief notice cannot enter.

R. ADAMSON.

*The Herbartian Psychology applied to Education.* Being a series of Essays applying the Psychology of Johann Friedrich Herbart. By JOHN ADAMS, M.A., B.Sc., Fellow of the College of Preceptors, President of the Educational Institute of Scotland, 1896-7, Rector of the Free Church Training College, Aberdeen. London: Isbister & Company, 1897. Pp. iv., 284.

This little book must not be confused with the many attempts which have been made of late merely to re-expound the doctrine of Herbart for teachers. On the contrary, it is a fresh, stimulating, and independent essay on the educational value of the doctrine of apperception,

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and on the whole, there is more of Mr. Adams in it than of Herbart. The only direct exposition of Herbart's peculiar views, as distinguished from those results of his work which have become permanent possessions of psychology, is contained in chap. iii., pp. 44-66. This is as well done as the conditions of such a book allow. We think, however, that Mr. Adams ought to have given some distinct indication at this point that he does not himself accept or desire his readers to accept Herbart's ontological assumptions. Chap. iv., on "The Theory of Initial Equality," strikes us as the weakest in the book. Mr. Adams affirms that there is one sense in which all minds may be regarded as equal. When precisely the same data are presented to them, they will arrive at the same conclusion. This, no doubt, is a tenable position, if we are careful to insert the requisite restrictions and conditions. But then it amounts to no more than saying that precisely the same causes will have precisely the same effects. The real question is, whether minds are so alike that precisely the same conditions can be made operative in precisely the same ways in all of them. This is possible, says Mr. Adams, if precisely the same data are laid before them, and if they confine their attention to these data, and these only. But *can* the same data be laid before them? Supposing that the data are given in succession. Each mind, we may suppose, apprehends each separate datum in virtually the same way. There still appears to be a very great difference in the power of combining these data, in the degree in which each separate datum is apprehended in relation to the whole, so as to derive significance from it. A boy may understand each separate sentence in a proposition of Euclid, without being able in the least to catch the essential drift of the proof. For this reason we regard Mr. Adams' distinction between thinking and judging as arbitrary. Chap. v., on "Formal Education," disputes the view that the matter of a study is indifferent, if it only cultivates the intellect. Fagin's school in Dickens' novel, it is argued, is to be condemned not because it fails to develop intelligence, but because it develops it in a wrong direction. "We cancel Fagin's certificate not because he is a bad teacher, but because he teaches bad things" (p. 134). It seems to us that Mr. Adams fails to take sufficient account of the fact that some studies have a far more wide and general effect on the intellect than others. But this is no doubt a matter of content as well as form. Chap. vi. argues against the supposition that it is a legitimate or useful educational endeavour to cultivate the habit of observation in the abstract, apart from the cultivation of special interests and aptitudes. In chap. vii., on "The Logical Concept and the Psychological," there are some excellent remarks on the abuse of dictionaries and vocabularies, founded on the distinction between the dictionary definition and the fluctuating meaning which a word acquires in varying contexts and circumstances. The author gives an amusing account of how he himself when a boy attempted to read a dictionary through, in order to save trouble for the future. Oddly enough, the present writer distinctly remembers doing the same thing. Chap. viii. treats of school jokes. The nature of a joke is admirably explained from the point of view of the doctrine of apperception. Due distinction is made between the schoolmaster's jokes, the pupils' "howlers," and those childish answers which are correct enough, but comically incongruous with the gist of the question. The value of the joke and the riddle as instruments of education is insisted on in an instructive way. Chap. ix., on "Graphic Hypotheses," contains among other good things a most interesting account of a prize competition in which the competitors were required to send in maps of Crusoe's island. The final

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chapter, on "The Doctrine of Interest," winds up with the conclusion that "interests must be tested by their effect on the child's development, viewed in connexion with its place in the organic unity of the world in which it has to live" (p. 279).

EDITOR (G. F. S.).

*Ethics: an Investigation of the Facts and Laws of the Moral Life.* By WILHELM WUNDT. Translated from the second German edition (1892) by EDWARD BRADFORD TITCHENER, JULIA HENRIETTA GULLIVER and MARGARET FLOY WASHBURN. Vol. i.: "The Facts of the Moral Life". Translated by JULIA GULLIVER and EDWARD BRADFORD TITCHENER. London: Swan Sonnenschein & Co., Lim.; New York: The Macmillan Company, 1897. Pp. xii., 389.

The first instalment of the promised translation of Wundt's *Ethik* will be welcomed by all English-speaking students of ethics. Of the importance of the work itself it is unnecessary to say anything here; attention was called to it on its first appearance (MIND, O.S., No. 46, vol. xii., p. 285 ff.). The importance of the translation lies in the extreme difficulty of Wundt's German style, especially in this first part of the treatise. The translators are to be congratulated on their complete success in rendering this part into smooth and readable English without any unfaithfulness to the literal meaning of the original. The convenience of the reader is further consulted by the preservation of the German pagination throughout, and by the addition of an excellent index.

Wundt's work consists, it will be remembered, of three parts, i., "The Facts of the Moral Life"; ii., "Ethical Systems"; iii., "The Principles of Morality, and the Sphere of Their Validity," containing the author's own ethical system. To each of these parts the translators have assigned a separate volume. In this volume the inductive basis is laid in a careful and well-informed, yet original, account of the facts of the moral life. The necessity of such an inductive basis is clearly pointed out by the author in his preface. "There has been no lack either of speculative or of psychological essays in the moral sphere, and I am more than ready to give both their due. But I think that we must look to ethics to supply the corner-stone of metaphysics, of our final and comprehensive view of the universe; and so it seems to me inadvisable to reverse the relation of the two disciplines and base moral philosophy upon metaphysics. As to psychology, I have personally found it to be so necessary a propædeutic and so indispensable an aid to ethical investigations that I do not understand how any one can do without it. But the psychology of the moralists belongs for the most part to the days of the older empiricism. It is, to my thinking, altogether too individualistic in its point of view; besides which it has not advanced beyond that stage of popular thought at which subjective interpretations of facts are naïvely intermingled with the facts themselves. The straight road to ethics lies, I believe, through *ethnic* psychology, whose especial business it is to consider the history of custom and of ethical ideas from the psychological standpoint." It is in the adoption of this new method in ethics that the chief interest of Wundt's work consists. The two chief hypotheses which he seeks to verify by a study of the facts of morality are, first, that the result or end attained by human activity is not to be confused with the motive or impulse which prompted it, the final with the efficient cause: and, secondly, that the most universal and influential motive, the great efficient cause of moral progress, has been religion. "Fulfilment of purpose, however complete, does not ensure the identity

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of purpose and motive. And the history of custom forms one of the most remarkable illustrations of an original incongruity between the two. History shows that almost all, and especially all the more significant forms of life, have their root in *religious* motives that have disappeared from the consciousness of a later age" (p. 134). The skill and insight with which the facts are marshalled makes these hypotheses well-nigh irresistible, and imparts a certain artistic as well as a high scientific value to the presentation of the facts themselves.

JAMES SETH.

*Appearance and Reality.* A Metaphysical Essay. By F. H. BRADLEY, LL.D. Glasgow, Fellow of Merton College, Oxford. Second Edition (Revised), with an Appendix. London: Swan Sonnenschein & Co., Limited; New York: The Macmillan Company, 1897. Pp. xxiv., 621.

The first edition of this book was reviewed in MIND., N.S., 9 (Jan., 1894). The main feature of this second edition is an appendix of sixty-nine pages, containing: (1) An outline sketch of the general purport of the book; (2) Long notes on Contradiction and the Contrary, on Relation and Quality, and on Identity; together with shorter explanatory notes referring to particular passages of the original work, consisting mainly of replies to criticisms. The general sketch is useful as giving a bird's-eye view of the author's argument. The note on Contradiction and the Contrary is of special importance, as it contains by far the most clear and convincing exposition which Mr. Bradley has yet given of the critical method and general point of view from which he approaches ultimate philosophical problems. No one ought to write an adverse criticism of Mr. Bradley without first carefully studying this note, which first appeared as a paper in MIND, N.S., 20. The second note discusses the question whether terms are necessarily altered by the relations into which they enter. Mr. Bradley, of course, replies in the affirmative. The third note argues that all identity is fundamentally one. It consists always in identity of content and character. "There is no sameness of mere existence, for mere existence is a vicious abstraction" (p. 587). There are many interesting references to Mr. Hobhouse's book on *The Theory of Knowledge* in this discussion. Among the minor notes there is one referring to my own criticism of Mr. Bradley's view of activity as given in his book, pp. 96-100. I now admit that my strictures were largely based on misapprehension. My mind was filled at the time with a distinction between the acquired meaning of a sensation, and the revival of the mental image of what it means. Only to the revived image would I give the title of idea. Where it is absent I should speak of perceptual rather than of ideal consciousness. I now gather that Mr. Bradley would call the acquired meaning, even apart from anything in the way of revived imagery, an idea. The point of my special criticism of the conception of implicit ideas is thus lost; but I am still as strongly of opinion as ever that the distinction which I was making is of the most vital importance for psychological purposes, and I think also for metaphysical.

EDITOR (G. F. S.).

*The Law of Nature and Nations in Scotland.* By WILLIAM GALBRAITH MILLER. Edinburgh: William Green & Sons, 1896. Pp. 141.

This little volume consists of a series of lectures delivered in the University of Glasgow in the years 1895-6. It is intended to constitute an introduction

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to the Philosophy of Law and to International Law. Mr. Miller in his preface complains of the scant recognition which is accorded to legal studies in the Scotch Universities. It appears that there are "only eight endowed chairs of law in all the four universities, and even of these five have been devoted or diverted to the teaching of merely professional subjects: while for the teaching of Presbyterian theology there are at least eight fairly endowed and fairly equipped Faculties or Colleges, besides the colleges of other religious denominations and four richly endowed Gifford Lectures as an antidote". These facts, as Mr. Miller truly remarks, throw a curious light on the state of the higher learning in Scotland. It is a misfortune that the Scotch Universities are so badly equipped for dealing with such a subject as the principles of jurisprudence. It is a subject which is peculiarly suitable to the Scotch mind inasmuch as it is at once abstract and practical. In the United States it is not unusual for a millionaire to step forward and settle difficulties of this kind. We hope that Mr. Miller's exhibition of the barrenness of the land may induce some wealthy Scotchman to wipe out a national disgrace. Of Mr. Miller's lectures it is unnecessary for us to say much. They are what they profess to be, an introduction to his subject. The meaning and scope of jurisprudence in general and of International law are discussed. The interpretations which have been put upon these terms by English, Scotch and continental writers are critically examined. At times Mr. Miller's statements do not possess the precision which is so desirable in an introductory work. But on the whole these lectures are a useful introduction from a Scotch standpoint to the science of jurisprudence.

*Bases of Religious Belief, Historic and Ideal.* An Outline of Religious Study. By C. M. Tyler. New York and London: G. P. Putnam's Sons, 1897. Pp. x., 273.

Professor Tyler stands for a rationalised or liberal orthodoxy, and his general teaching bears a close resemblance to that of Prof. Pfleiderer. "Both conscience and philosophy," he writes in his preface, "accept the divine law of development. . . . That God can be known in his transcendence is the view of a 'romantic' metaphysic. That he can be known only in his relation to us and to the world, as immanent in both, is the teaching of an inductive metaphysic. . . . The facts of man's religious history, and the moral and religious ideals which are the forces of all progress, demand and find their meaning in the perfect Goodness, who is the Supreme Cause and End." And, in the Conclusion: "As history is itself a divine process, a perpetual miracle, Religion does not stand or fall with miracles of any time or place".

The book aims "to give simply a *résumé* of the conclusions of modern thought". Part i., on the historic basis of religious belief, is in truth little more than a summary of the views of accepted authorities. It contains four chapters: on the definition of religion, on prehistoric and historic data and their bearing upon the study of religion, on the question whether the beginning of human history was a moral catastrophe, and on the psychological genesis of religion. In part ii., on the ideal bases of religious belief, the author writes more freely, and while still following a beaten path gives some play to his own individuality. The chapters of this part deal with the metaphysical, ethical and æsthetic grounds of belief, with spiritual love as realisable ideal, and with the revelation of God in human progress.

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The work is meant for use as a text-book. In conformity with this purpose, we find a running marginal analysis, a series of notes appended to each chapter, and a good analytical index. It will be worth while, in a future edition, to make the literary references more detailed and exact.

*Origin and Nature of Conscience.* By P. G. KNOWLTON. Oberlin O. 1897. Pp. 150.

The aim of this essay—a thesis written for the Leipzig doctorate under Heinze's direction—is threefold: to set forth the leading principles of the 'empirical-evolution' theory of the origin of conscience; to give a critical estimate of the philosophical adequacy and ethical import of that theory; and to reach constructive conclusions respecting the origin and nature of conscience.

Part i. considers the views of Darwin, of Spencer and Rée, of Bain, J. S. Mill and Grote, and of Stephen and von Ihering. The statement of opinion is fair, but far too brief to be adequate. Part ii.—general criticism—is one-sided, and its psychological chapter weak. In part iii., which accepts and develops a nativistic account of conscience, the author is at his best. The whole thesis is a competent piece of work; but is too ambitiously planned, and (like so much of ethical controversial writing) never gets to close quarters with the doctrine it is opposing.

*Christianity and Idealism.* The Christian Ideal of Life in its Relations to the Greek and Jewish Ideals and to Modern Philosophy. By J. WATSON. Second Edition. London and New York: Macmillan & Co., 1897. Pp. xxxviii., 292.

This second edition of *Christianity and Idealism* is considerably larger than the first (MIND, N.S., vol. vi., p. 424). It is introduced by an additional preface of twenty pages; and part ii. (Modern Idealism and Christianity) has received three new chapters and a new section. The chapters are entitled: 'The Failure of Materialism,' 'The Idealistic Interpretation of Natural Evolution,' and 'Idealism and Human Progress'. The new section (pp. 268-280) meets an objection to the author's view of the absolute—the objection that the world may yet have stages to go through whose nature we cannot at all foresee.

What should be the most interesting of the three added chapters—the second on the list—proves to be the most disappointing. The author has written too briefly, and too dogmatically. One cannot say off-hand that chemical energy is different in kind from physical; or that the energy of life is different in kind from physical and mechanical energy. Neither can one ignore the recent discussions of the discontinuity of the evolutionary process. Prof. Watson is guilty on the score both of commission and of omission.

*Practical Handbook of the Diseases of the Eye.* By D. C. WATSON. Edinburgh: W. F. Clay; New York: The Macmillan Co., 1897. Pp. xii., 236.

Although primarily intended for the use of medical students, this little book contains much that is valuable for the laboratory psychologist. The principle of Snellen's test types, the mechanism of accommodation, presbyopia, myopia and hypermetropia, the numbering of lenses and retinoscopy, astigmatism and strabism, diplopia and muscular paralysis

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—all these things are explained accurately and succinctly, and all must be referred to in any drill-course of psychological optics. The author is sound upon the question of colour-blindness: "red blindness and green blindness always go together": though in deference to current opinion he has to give the Young-Helmholtz tests.

*Introduction to Philosophy.* A Handbook for students of Psychology, Logic, Ethics, Æsthetics, and General Philosophy. By OSWALD KÜLPE, Professor of Philosophy and Æsthetics in the University of Würzburg. Translated from the German (1895) by W. B. PILLSBURY, Instructor in Psychology in the Cornell University, and E. B. TITCHENER, Sage Professor of Psychology in the Cornell University. London: Swan Sonnenschein & Co., Limited; New York: The Macmillan Co., 1897. Pp. x., 256.

This book was reviewed in its German form in MIND, N.S., vol. iv., No. 16. Emphasis was there laid on the suitability of the work as a text-book for a course of lectures on the general problems of philosophy. We have only to add here that the present translation is excellent. Additions have been made to the list of literary references both by Prof. Külpe and the translators, but the omissions noted in our review still remain, except in the case of Sidgwick's *History of Ethics.*

*The Philebus of Plato.* Edited with Introduction, Notes and Appendices, by ROBERT GREGG BURY, M.A., formerly Scholar of Trinity College, Cambridge, and late Bishop Berkeley Fellow of the Owens College, Manchester. Cambridge: at the University Press, 1897. Pp. lxxxvii., 224.

The *Philebus* occupies a most important place among the dialogues which are becoming generally recognised as expressing the latest developments of Plato's philosophy. Mr. Bury in this edition shows himself fully alive to its philosophical significance, and he gives much solid and useful help to those who wish to study it from a philosophical as well as a philological point of view. The Introduction gives a general analysis of the dialogue, and then proceeds to discuss the epistemology, ontology, and ethics of the *Philebus.* Finally, it treats of the vexed question of the relation of the idea to the ultimate constituents of being, πέρας and ἄπειρον, their product, τὸ μικτόν, and the cause of mixture, αἰτία. Mr. Bury rejects Jackson's theory, and himself refuses to identify the idea directly with any of the four classes.

*The Works of George Berkeley, D.D., Bishop of Cloyne.* Edited by GEORGE SAMPSON, with a Biographical Introduction by the Rt. Hon. A. J. BALFOUR, M.P. Vol. i. London: George Bell & Sons, 1897. Pp. lxi., 397.

This edition is much cheaper and handier than Fraser's elaborate work. It contains no commentary or discussion: but this omission can hardly be regarded as a drawback. Nobody can expound Berkeley nearly so well as Berkeley has expounded himself. Learned discussion of his place in the history of philosophy would be inappropriate in an edition meant for general readers, as this is. It is needless to say that the biographical sketch by Mr. Balfour is well written and interesting.

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*A Manual of Ethics.* By JOHN S. MACKENZIE, M.A., Professor of Logic and Philosophy in the University College of South Wales and Monmouthshire, formerly Fellow of Trinity College, Cambridge. Third Edition, revised, enlarged, and in part re-written. London: W. B. Clive, University Correspondence College Press, 1897. Pp. xix., 456.

This book is generally recognised as the best manual of Ethics in English. The third edition is thoroughly revised, and contains 100 additional pages. Criticisms have been carefully considered. A chapter is added at the end of book ii. on the relation of ethical theory to practice. But the most important feature of the new edition is the introduction of much matter bearing on the evolution of the moral life from the sociological point of view. This is certainly a great improvement, and will serve to make the book even more interesting to beginners than it was before.

*Greek Folk Poesy.* Annotated Translations from the whole cycle of Romaic Folk Verse and Folk Prose. By LUCY M. J. GARNETT. Edited with Essays on the Science of Folklore, Greek Folkspeech, and the Survival of Paganism, by J. S. STUART-GLENNIE, M.A. London: David Nutt, 1896. 2 vols. Pp. xlv., 477; viii., 541.

Mr. Stuart-Glennie values these folk tales mainly as a corroboration of his doctrine that the primitive conception of nature is that of a "solidarity of mutually influencing powers" (vol. ii., p. 489), sentient and in sympathetic communion. On this basis he argues against the theory that the conception of Spirits, as expounded by Mr. Tylor and others, is a characteristic feature of primitive thought. His own positive contention is more convincing than his polemic. He also takes occasion to advocate the doctrine that the origin and development of civilisation depends upon the conflict of distinct races. In the general doctrine he is no doubt largely right, though some of his special applications may be doubtful. On the whole Mr. Stuart-Glennie's Essays deserve attention from those interested in the psychology of primitive peoples.

*An Introduction to Human Physiology.* By AUGUSTUS D. WALLER, M.D., F.R.S., Lecturer on Physiology at St. Mary's Hospital Medical School, London. Third Edition. London: Longmans, Green & Co., 1896. Pp. xvi., 640.

In noticing this last edition of a well-known book, it is unnecessary to comment on its general merits. It is, however, worth while to draw attention to its special adaptation to those students who have to read physiology for psychological purposes. Dr. Waller is himself intensely interested in psychological questions, and his account of the sense organs and of the nervous system gives, in a clear, concise, and vigorous way, just the kind of treatment which a student of psychology requires.

*Philosophical Lectures and Remains of Richard Lewis Nettleship.* Edited with a Biographical SKetch by A. C. BRADLEY, Professor of English Literature in the University of Glasgow, formerly Fellow and Lecturer of Balliol College, Oxford, and G. R. BENSON, of Balliol College. Oxford: Macmillan, 1897. 2 vols. Pp. lvi., 394; vi., 364.

The first of these volumes contains Prof. Bradley's biographical sketch (about fifty pages), followed by 100 pages of selections from Nettleship's

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letters and miscellaneous papers, a course of Logic Lectures reproduced from lecture notes taken by pupils, and a chapter on Plato's conception of goodness and the good which was all that Nettleship completed of a proposed work on Plato. The second volume consists of Lectures on Plato's *Republic*, reproduced from lecture notes.

Nettleship's very remarkable individuality is represented in these volumes with striking success. Especially Prof. Bradley's memoir, and the extracts from Nettleship's letters and papers will be delightful to those who knew him, and full of suggestion for those who did not. Critical notice will follow.

*L'Année Philosophique.* Paris, 1897. Pp. 1-316.

The first article is from the pen of **M. Renouvier**, and deals with Kant's Categories. Kant is in error in endeavouring to *deduce* the Categories, and, secondly, his procedure and results rest upon a metaphysic presupposition. The second point is treated of in detail, and M. Renouvier endeavours to show that Kant's refutation of "Metaphysie" contains the germ of theories of the Absolute "more chimerical" than those destroyed by criticism. This contradiction can only be escaped by a reinvestigation of the Categories—M. Renouvier cannot call it a fresh deduction or even criticism—whence it results that the fundamental Category is Relation which is the genus of which the others are the species. When M. Renouvier comes to sum up his results he makes Relation the first Category, thereby apparently co-ordinating it with the rest, and the whole table is divided into four groups of pairs with an odd Category (Space) alone at the end. The following is the list :—Relation, Personality : Quantity, Quality : Becoming, Succession : Causality, End : Space. The next article, by **M. L. Dauriac**, upon the doctrine and method of M. J. Lachelier, is a complement to that of M. Renouvier. The deduction of Categories, which the first endeavours to evade, the second attempts to establish. M. Dauriac takes advantage of the republication of M. Lachelier's works to collect from them the general drift of a philosophical theory, which has been as yet only given to the public in outline. As a result M. Lachelier is to be ranked as a follower of Cousin, but with certain modifications. Like Cousin he is an eclectic, and he therefore takes advantage of much recent thought to find fresh premises for Cousin's conclusions. If Cousin attempted "to demonstrate the Philosophy of Schelling by the method of Condillac," M. Lachelier's contribution might be characterised as an attempt to maintain the Philosophy of Cousin by an adaptation of the method of the post-Kantians, through which run certain threads derived from the "Scottish School" through Cousin. **M. Pillon's** contribution to his 'L'Evolution de L'Idéalisme au XVIIIe Siècle' deals with Bayle's criticism of Anaxagoras and the Atomists. Bayle, owing to his Cartesian training and sympathies, objected to the teleology derived from the ordering functions of the νοῦς of Anaxagoras. To eliminate the metaphysical need of a Creator or "Divine Architect," he maintained an animated or vitalistic atomism. This theory is brought into contact with the later form advanced by Maupertuis, and more recently by M. Charles Lemaire and Mme Clémence Roger; and is compared historically with St. Augustine's interpretation of Democritus in connexion with certain *vim animalem et spiritualem* as well as the theory of *animantes imagines* which distinguishes early Atomism from the form in which, he says, it was held by Epicurus. "Animated Atomism" is also placed in relation to the *idées-modèles* of Malebranche, to the monads of Leibnitz, to the Worcester-Locke controversy, and finally to Clarke's position on the "Immateriality of the Soul".

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*La Sociologie.* Par AUGUSTE COMTE. Résumé par EMILE RIGOLAGE. Paris: Félix Alcan, 1897. Pp. 470.

In the preface to this volume M. Rigolage informs us that he first began to summarise Comte's *Cours de Philosophie Positive* as far back as the year 1876, and that he published two volumes of this summary in 1881. These volumes are out of print. The first volume he has not republished. He considers that it requires too minute an acquaintance with certain recondite scientific ideas to be of much service to the average reader. On the other hand, he is of opinion that the second volume of his summary may be usefully republished. This he has now done under the title *La Sociologie.* It seems to be a very good *résumé* of Comte's sociological system. The main outlines of Comte's views respecting the need of a social science and the value of attempts previous to his own to establish a science of society are clearly given. The same remark applies to M. Rigolage's summary of Comte's theory of social order and social progress. In fact if any one wishes to form a fairly trustworthy conception of Comte's *System of Positive Polity* and has not time to undertake the laborious task of reading Comte's own works, he will find M. Rigolage a useful guide.

*L'Opposition Universelle.* Essai d'un Théorie des Contraires. Par G. TARDE. Paris: Félix Alcan, 1897. Pp. 451.

M. Tarde is becoming quite a voluminous writer on philosophical and social subjects. He is undoubtedly a man with a considerable amount of originality, but he unfortunately lacks the French gift of expressing himself with lucidity. Almost all his work is ingenious, but it is not always convincing. He is too fond of paradox and premature generalisation. But he is a suggestive writer, and his works are worth reading, not only on their own account but also as a type of the philosophic mood which at present prevails to a large extent among our neighbours across the Channel. In the present volume, M. Tarde starts from the principle that all our knowledge of things lies in the fact that we perceive resemblances and differences between them. But he is of opinion that our knowledge of things does not end with our perception of similarity and difference. There is a third point which has to be borne in mind, and which we are apt to underestimate and even to forget. This third point is the combination of similarity and difference. When similarity and difference are fused together we have a new relation—a relation which M. Tarde describes as a relation of opposition, inversion, and contrariety. *L'Opposition Universelle* is an exposition of this idea, and is the complement of his former volume on the *Laws of Imitation.*

*System der Philosophie.* Von WILHELM WUNDT. Zweite umgearbeitete Auflage. Leipzig, 1897; London: Williams & Norgate. Pp. xviii., 689.

On its first appearance this work, as its importance required, was reviewed at length in MIND (vol. xv.). Its importance lay in the fact that it was in a pre-eminent degree representative of the conception of metaphysics, to which the philosophy of the present time, where it does not stop short in a critical theory of knowledge, is pretty definitely tending, and which indeed is likely to be permanent in philosophy: the conception of it as directly based on the special sciences and having for its task the unification and completion of their main results in a single coherent system. In this respect the book, whether or not it is to be regarded as epoch-making, is certainly epoch-marking.

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Naturally the changes in the present edition are inconsiderable compared to the total bulk of the work, and do not affect any matters of principle. They are directed, the author explains in the Preface, mainly towards removing misapprehensions of his meaning. Frequently the changes consist of simple omissions, and the motive of these, unless it be merely brevity, is not always quite apparent to the reader. The book is without an Index, and it is therefore an advantage that in some cases the sections are more subdivided than before, and that the titles of all the subdivisions are now printed in the Table of Contents. The more important changes (and especially the main additions) occur, as the author points out, and as might have been anticipated, first, in the division that deals specially with the theory of knowledge (the second), and, next, in the divisions that are concerned with the application of philosophical principles to the leading problems of the physical and mental sciences respectively (the fifth and sixth).

In the division on Knowledge the chief changes are the following. In i., § 2, the author adds a little to his criticism of those who assume an original diversity, instead of an original identity, of 'Vorstellung' and 'Object'. ii., § 6, is slightly altered, perhaps not altogether for the better, in order to introduce a reference to recent epistemological theories. In the last section of this division (§ iv., § 5) there are some changes of nomenclature. The term 'Animismus' is happily discarded for the more appropriate 'Voluntarismus'. The classification of metaphysical Weltanschauungen is simplified and perhaps improved.

In division v., 'Hauptpunkte der Naturphilosophie,' there are three important additions. (1) In section i. a § is added on the 'Beziehungen zwischen Begriff und Anschauung beim Begriff der Materie'. (2) In the last § of the same section six or seven pages are added on the 'naturwissenschaftliche Einwände gegen den Begriff der Materie'. (3) In section ii. the discussion of the 'Princip der Energie' is enlarged and a criticism given of the attempt to set up, on the basis of this principle, 'eine völlig hypothesenfreie Naturlehre'.

In division vi., 'Grundzüge der Philosophie des Geistes,' among various minor changes in the early sections it may be noted that in i., § 1, c (i., § 8, in the previous edition) the perhaps objectionable expression 'relativ unbewusst' as applied to 'geistige Vorgänge' is removed, together with the reference to psycho-physical dispositions, and the exposition now moves consistently in terms of 'Bewusstseinsgrade'. The main additions in this division are two. (1) In section ii. a new § is inserted (between §§ 6 and 7 of the previous edition) containing a brief discussion (the reader is referred to other writings of the author) on the 'Principien der geistigen Causalität,' in which the teleological character already found to pertain to all psychical causality is expressed in three general principles of psychical development. (2) In § 4*a* (§ 7 in the previous edition) of the same section the author, in remarking upon the principle of psycho-physical parallelism, takes occasion to reject the notion of a special psycho-physical causality distinct alike from physical and from psychical causality, on the ground that no independent principles can be made out for such a third kind of causality.

H. Barker.

*Kritische Grundlegung der Ethik als positiver Wissenschaft.* Von Dr. Med. Wilhelm Stern, pract. Arzt in Berlin. Berlin: Ferd. Dümmlers Verlagsbuchhandlung, 1897. Pp. 471.

Dr. Stern treats ethics apart from religious or metaphysical pre-

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suppositions. When religious and metaphysical presuppositions are excluded he appears to be unable to imagine any other mode of dealing with the subject than the evolutional. Such a point of view as is represented by Prof. Sidgwick's *Methods of Ethics* has apparently never dawned upon him as a possibility. There is in his work much criticism of ethical theories. One of his leading tests in judging of the value of a theory is its applicability to animals; but he gives no exact analogy of the facts of animal life showing the presence of truly ethical behaviour. His own view is that the primary root of ethical consciousness is to be found in the battle against the hostile conditions of external nature; the combative attitude towards these conditions becomes generalised, so as to result in a tendency to defend all psychical life with its products and manifestations against threats and encroachments analogous to those of hostile natural forces. The book has evidently cost the author much labour and effort; but the result is disappointing. He seems to be practically unacquainted with English evolutionary ethics, even with the work of Mr. Herbert Spencer. He also unfortunately writes in a style which we had hopes was becoming extinct in Germany. It is a hard task to wade through his cumbrous periods, often as much as half a page in length.

*Raumaesthetik und geometrisch-optische Täuschungen.* Von THEODOR LIPPS, Professor a. d. Universität München. Mit 183 Figuren und einer Tafel. Schriften der Gesellschaft f. Psychologische Forschung, Heft 9-10 (II. Sammlung). Leipzig: Verlag von Johann Ambrosius Barth, 1897. Pp. viii., 424.

This is a very important work. The central idea is that geometrical form is apprehended in what we may call a dynamic manner. Lines and their combinations appear to us as active, as expanding or contracting themselves, as gathering themselves together for an effort, and the like. On the subjective side this mode of apprehension involves a corresponding activity in us. From this point of view, Prof. Lipps explains both the æsthetic enjoyment of form, and optical illusions of a geometrical kind. The method followed is rigidly scientific, producing conviction by an imposing array of facts carefully analysed and verified. The general idea seems similar to that which has been recently brought forward in the *Contemporary Review* (October and November, 1897) by Vernon Lee and Mr. Anstruther-Thomson. But Prof. Lipps' treatment is beyond comparison more precise, comprehensive, and convincing. Critical notice will appear in the July number of MIND.

*Die Sociale Frage im Lichte der Philosophie.* Von Dr. LUDWIG STEIN, Professor der Philosophie an der Universität Berne. Stuttgart: Ferdinand Enke, 1897. Pp. 791.

This work had its origin in a series of lectures delivered a few years ago by Dr. Stein at the Polytechnik and the University of Zürich. It is not written in the technical language of philosophy, owing to the fact that it was addressed to a general audience, but the book has gained in readableness on this account. Dr. Stein attempts to account for the social tendencies of our times, and he considers that these tendencies may be summed up as the endeavour to arrive at a new conception of social life. It is in several respects an important volume, and a detailed notice will follow.

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*Geschichte der neueren deutschen Psychologie.* Von MAX DESSOIR. Zweite, völlig umgearbeitete Auflage. Erster Halbband. Berlin: Carl Duncker, 1897; London: Williams and Norgate. Pp. 356.

This first half-volume deals with the psychology of the eighteenth century. It consists of a condensed account of the work of the crowd of writers who during the period of *Aufklärung* occupied themselves with the study of the individual mind largely with a sentimental or practical interest. Few of the authors referred to have much significance or interest for us taken separately. But the total movement of thought which they represent is extremely curious and important. To obtain a precise idea of this movement it is well worth while to pass in review the almost interminable list of small writers; and we owe a debt of gratitude to Prof. Dessoir for the pains and labour which he has bestowed in mastering his diffuse and not very attractive material. His arrangement does not strike us as particularly lucid, but undoubtedly the problem was one of great difficulty. The account he gives of the general culture conditions of the period is very useful and interesting. In the second half-volume which is to follow he proposes to treat the same period from a different point of view. He promises a general account of the evolution of thought apart from reference to the individual men who were its vehicles. We look forward with much interest to this second instalment.

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# IX.—PHILOSOPHICAL PERIODICALS.

PHILOSOPHICAL REVIEW. Vol. vi., No. 4. **E. Albee.** 'Hume's Ethical System.' [Hume "was the first to hold the utilitarian doctrine in its unmistakable form and at the same time to admit and defend the altruistic tendencies of human nature".] **M. W. Calkins.** 'Kant's Conception of the Leibniz Space and Time Doctrine.' ["Kant's misunderstanding is only to be explained by the reflexion that he knows only or mainly the corrupt Wolffian form of the Leibniz doctrine, which teaches that extended matter and composite bodies are made up of monads lying as it were side by side."] **C. H. Judd.** 'Wundt's System of Philosophy.' [A clear popular account of some points in the *System*. The object of idea; the three stages of knowledge; natural science as conceptual, psychology as perceptual; the two kinds of transcendent ideas; substance and cause; parallelism and teleology. Wundt's system is best described as a 'critical realism'.] **J. D. Logan.** 'The Aristotelian Teleology.' [Aristotle reconciles necessity and finality "in finding, by way of the essential relation of form and matter, or the idea of immanent teleology, both principles equally valid for the philosophical interpretation of the cosmic process". The Platonic teleology; misapprehension of Aristotle by Darwin, Lewes, Romanes; Aristotle's idea of immanent teleology paradoxical, because he determined its significance empirically.] Discussion. **B. I. Gilman.** 'Mr. Santayana's Æsthetics.' [Defence against Logan; critique of use of 'value' and 'natural selection'.] Reviews of Books. Summaries of Articles. Notices of New Books. Notes.

PSYCHOLOGICAL REVIEW. Vol. iv., No. 4. **G. M. Stratton.** 'Vision without Inversion of the Retinal Image,' i. [Continuation of experiments reported in vol. iii., No. 6. Glasses worn for parts of eight days; record of six. Summary to follow.] **W. M. Urban.** 'The Psychology of Sufficient Reason.' [Necessity has two, sufficient reason three terms. The middle term is imagination, which in every case shows two sides: an effect or force-side, and ideas held together by immanental relations. A theory of selective accommodation in the higher sphere might then read thus: 'Reaction of organism to environment is not directly upon stimulus, but indirectly through ideal complexes standing for external reality. These imitate reality, in that they are the result of imaginations which gather past experience together under the teleological criterion of reproduction of past reality-feelings. All of them tend to motor expression in will acts, *i.e.*, in accommodation. Some such expressions are right, others wrong; and so the selection works.' But what of logical relations among ideas? Are ideas useful? "The whole of truth rests upon utility which goes back to the psychological affective side; its parts, however, upon analytical and logical necessity." The difficulty ceases when both terms are reduced to the primal imagination.] **C. H. Judd.** 'Some Facts of Binocular Vision.' [Criticism of Hyslop (vol. i.), with new experiments. All results "furnish

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ground for accepting the association and motor-sensation theory of visual space ".] Shorter Contributions. **G. V. Dearborn.** 'Blots of Ink in Experimental Psychology.' [Blots on folded paper may be useful for work on memory, imagination, choice-reaction, etc., on account of their infinite variety, lack of suggestiveness, cheapness, etc.] **A. Cameron.** 'The Imagery of One Early Made Blind.' [Blindness at five years one month. Space ideas in terms of paper figures, swimming, etc.] **J. M. Baldwin.** 'Determinate Evolution.' [Organic Selection; the directive factor; intelligent direction and social progress. Matter added to foreign editions of *Mental Development.*] Discussion. **G. S. Fullerton.** 'Professor Ladd and the President's Address.' [Reply to criticism.] **E. A. Pace.** 'Visceral Disease and Pain.' [Critique of Head and Nichols. Head's results can be explained as a form of allocheiria, without calling in the hypothesis of distinct pain nerves. A good paper.] Psychological Literature. New Books. Notes.

Vol. iv., No. 5. **E. B. Delabarre.** 'Studies from the Harvard Psychological Laboratory,' viii. **G. V. Dearborn** and **F. N. Spindler.** 'Involuntary Motor Reaction to Pleasant and Unpleasant Stimuli.' [1017 experiments, 19 subjects. Flexion : extension = 2 : 1, under unpleasant stimulation; = 1 : 2 +, under pleasant. But this tendency is only one acting among many.] **G. M. Stratton.** 'Vision without Inversion of the Retinal Image,' *conclusion.* [Final experiments; discussion of results. "When touch and sight agree, it means that the perceptions of sight are spatially identical with the visual suggestions produced by touch, and the perceptions of touch spatially identical with the tactual suggestions produced by sight." Correspondence of local signs explains harmony, and makes reharmonisation possible whatever the position of the retinal image.] **J. M. Baldwin.** 'The Psychology of Social Organisation.' [Offprint from *Social and Ethical Interpretations in Mental Development.*] Shorter Contributions and Discussions. **A. Binet.** 'Le Dantec's Work on Biological Determinism and Conscious Personality.' [Analysis of the concepts of determinism, mechanism, physiological and psychological function, choice, spontaneity.] **C. E. Seashore.** 'A New Factor in Weber's Law.' [Weber's law is valid in regard to the apparent (not real, physical) stimulus.] **R. S. Woodworth.** 'Note on the Rapidity of Dreams.' [Observations by a modification of Egger's method. Dream associations are not extraordinarily rapid.] Psychological Literature. New Books. Notes.

Vol. iv., No. 6. 'Studies from the Princeton Psychological Laboratory,' vi. **H. C. Warren.** 'The Reaction-time of Counting.' [Counting may be perceptive, progressive or inferential. "Except under special stress of attention, or with subjects especially apt in this direction, the function of perceptive counting is limited to the numbers one, two and three." "Inference tends to shorten progressive counting, and to lengthen perceptive counting, when it takes their place wholly or in part."] vii. **G. A. Tawney** and **C. W. Hodge.** 'Some Experiments on the Successive Double-point Threshold.' [Limen for successive much shorter than that for simultaneous stimuli. The judgment 'different without direction' more frequent in experiments of the former kind. "The tactual perception of two points [successive or simultaneous] is an assimilation process, based on association, in which visual or motor images are the assimilating and tactual sensations the assimilated factors. . . . The local sign is no simple quality of tactual sensations, but rather a relation of association between the different factors, visual, motor and tactual."] **E. B. Delabarre.** 'Studies from the Harvard Psychological



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Laboratory,' ix. **E. B. Delabarre, R. R. Logan, A. Z. Reed.** 'The Force and Rapidity of Reaction Movements.' [Experiments with simple and with association reactions. Maximal pressure ($P$) and time through which the pressure increased in intensity ($D$) recorded. The quotient $\frac{P}{D}$ is constant for an individual in the same series; there are individual differences, both absolute and in range of variation. Variation in degree of pressure has larger range than that in rapidity of pressure. Association experiments show lessening in rapidity and increase in degree.] **F. N. Spindler.** 'After-sensations of Touch.' [Deals with the pressure after-image, not with the after-sensation of pressure. A weight of 150 gr. working for 5 seconds gives an image. No constant ratio between duration of stimulation and either length of blank interval or length of after-image. Most favourable pressures lie between 150 and 500 gr.] Discussion and Reports. **C. L. Franklin.** 'The Colour-vision of Approaching Sleep.' [Subjective colours due to general fatigue; normal erythropsia.] **W. M. Urban.** 'Professor Wundt's "Ueber naiven und kritischen Realismus".' [Summary.] Psychological Literature. New Books. Notes.

American Journal of Psychology. Vol. viii., No. 4. **E. H. Lindley.** 'A Study of Puzzles with Special Reference to the Psychology of Mental Adaptation.' [Creatures tending to "exploit the intelligence may have perpetuated this superiority as a general intellectual play instinct". Classification: language and word puzzles, mechanical, mathematical. Adaptations have survived because, on the whole, useful: the puzzle *quale* is largely a set-back to the current of natural tendencies and habits. Interest in different kinds of puzzles: questionnaire returns, results of labyrinth test. Stages of sense-trial and error, receptual, conceptual methods. Appendix: historical notes, logical and philosophical puzzles, dilemmas of etiquette, etc.] **J. McCrea** and **H. J. Pritchard.** 'The Validity of the Psychophysical Law for the Estimation of Surface Magnitudes.' [Grew out of Quantz' work (*Journal*, vii., 1). Accuracy of judgment "astonishingly great". Approximation to Weber's law. Moved objects on the whole underestimated as compared with fixed.] **D. E. Phillips.** 'Genesis of Number Forms.' [Questionnaire returns: age of appearance, origination, use, position, hereditary possibilities, connexion with fondness for mathematics, etc. "I believe that nearly all persons possess some idea of extension of numbers, more or less indefinite." The explanation of the forms is thus to be looked for in "the motor and space elements in thought".] **J. H. Leuba.** 'The Psychophysiology of the Moral Imperative.' ["The moral imperative is the psychic correlate of a reflective, cerebro-spinal, ideo-motor process, the efferent end of which is organised into motor tracts co-ordinated for a specific action." It is reflective, as opposed to reflex apprehension; cerebro-spinal, as opposed to sympathetic (dependent on passion, emotion or sentiment); clean-cut in motor co-ordination, as opposed to division into antagonistic lines of discharge and consequent indistinctness of the idea of action. Detailed illustrations; diagrams of associated arcs. Defence of position that "cognition of moral oughtness is the psychic side of certain particular processes of the reflex-arc type". Psychophysics of impersonality, universality, imperativeness, obligatoriness, passionlessness, finality, stability, inefficacy,—the essential characters of the moral imperative.] Discussion. **M. Schallenberger.** 'Professor Baldwin's Method of Studying the Colour Perception of Children.' [Detailed criticism of method and results in Baldwin's *Mental Development*. Work of Preyer, Binet, Miss Shinn. Baldwin's

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inquiry was "so carelessly carried out that no reliance can be placed on the results obtained". The idea of the dynamogenic method remains.] Book Notes. Notes and News.

Vol. ix., No. 1. **G. S. Hall** and **A. Allin.** 'The Psychology of Tickling, Laughing and the Comic.' [Questionnaire returns. Physical act of laughter, tickling, animal antics, practical joking, caricature, wit, etc., etc. "Mad, wild, weird and almost barbaric though laughter sometimes seems, perhaps reversionary and dissolutive in its nature, often convulsive in its intensity, on the whole no doubt (like occasional crying for babies) it is good for the voice, lungs, diaphragm and digestion; produces needed increase of blood-pressure to irrigate new-forming tissues; develops arterial tonicity and elasticity; tends to range, flexibility and vigour of emotional life; gives an optimistic trend against its evils; and tones down into settled and less paroxysmal states and grades of pleasure as maturity advances."] **E. C. Sanford** and **W. Preyer.** 'On Certain Optical Phenomena.' [Note and letter upon some illusion charts in form and colour.] **E. B. Titchener.** 'Minor Studies from the Psychological Laboratory of Cornell University.' xiv. **L. G. Birch.** 'A Study of Certain Methods of Distracting the Attention,' ii. [Judgments of sound intensity distracted by scents. Mechanism of distraction and stimulation by smell. "It seems from the experimental results that odour-series offer a means of distraction of the attention that is uniform, capable of gradation and applicable to normal subjects."] xv. **W. B. Pillsbury.** 'The Projection of the Retinal Image.' [Results of work with the Abbé *camera lucida* favour an empiristic theory of localisation.] **E. B. T.** 'Note to Studies iv. and vii.' [Reply to Heymans.] Discussion. **J. M. Baldwin** and **M. Schallenberger.** 'Colour Perception of Children.' [Reply to criticism and counter-reply.] **J. E. Downey.** 'A Musical Experiment.' [A recital of six selections before an audience of twenty-two; record of emotional interpretation. "Music has a somewhat definite emotional content, and the impression of this is received by the average listener, but with varying intensity. The formal content seems to be furnished entirely by the mood, associations or temperament of the individual."] **E. D. Starbuck.** 'Contributions to the Psychology of Religion. ii. Some Aspects of Religious Growth.' [Questionnaire returns. "In gradual growth, as in conversion, the clearest terms in which religious development expresses itself are those of egoism and altruism." "Religious awakenings come most frequently at about the age of puberty." But "the sexual instinct, which continues healthy and strong to conserve biological ends, has from a spiritual standpoint become a mere incident in growth". Gradual growth (doubt, estrangement, reconstruction of faith) and conversion compared. Necessity of using individual methods in religious training.] **H. E. Hunt.** 'Observations on Newly Hatched Chicks.' [Record of two chicks, second to sixteenth day.] Psychological Literature. Notes and News.

Revue Philosophique, No. 7. July, 1897. **Dunan.** 'L'âme et la liberté.—I. L'âme.' [The soul is the unity, universality of the phenomenal world. It may be conceived as unique (hylozoism) or multiple (monadism). Decision here in favour of the latter.] **Le Bon.** 'Le socialisme suivant les races. I.' **Pillon.** 'La philosophie de Secrétan. IV. Observations historiques et critiques.' (*Fin.*) [Doctrine of substance as a will, an absolute liberty which, by self-determination, creates the divine nature. Claims to synthetise theism and pantheism, monism and monadology.] Analyses et comptes rendus, etc.

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No. 8. August, 1897. **van Biervliet.** 'Images sensitives et images motrices.' [Difference between them one of degree only, not of kind.] **Dunan.** 'L'âme et la liberté.—II. La liberté.' [Liberty is essentially the *libre arbitre*, *e.g.*, self-possession by means of reflexion, and the faculty of being or acting in virtue of a will which is no mere repercussion of the general order of nature, but is really autonomous.] **Le Bon.** 'Le socialisme suivant les races,' ii. **G. Belot.** 'Un nouveau spiritualisme.' (Revue critique.) Analyses et comptes rendus.

No. 9. September, 1897. **T. Martin.** 'La démonstration philosophique.' [Demonstration consists—not in the passage from the known to the unknown, which is impossible—but in the clearer determination of a pre-existent thought: "tout homme pense toujours par un acte très confus la science spéculative universelle".] **R. de la Grasserie.** 'Des causes efficientes et téléologiques dans les faits linguistiques et juridiques.' **G. Segond.** 'Le mouvement moral d'après un livre récent.' (W. L. Sheldon, *An ethical movement and other essays.* London and New York: Macmillan & Co., 1896.) Analyses et comptes rendus. Correspondance, etc.

No 10. October, 1897. **G. Zardi.** 'La graphologia.' **G. Milhaud.** 'Le raisonnement géométrique et le syllogisme.' **Dugas.** 'Analyse psychologique de l'idée de Devoir.' ["Le devoir est la forme que revêtent nos sentiments et la direction qu'ils prennent lorsque la réflexion s'y ajoute et que la raison les gouverne."] **B. Bourdon.** 'La sensibilité musculaire des jeux.' **G. Dumas.** 'Gall et l'expression des émotions.' Analyses et comptes rendus, etc.

No. 11. November, 1897. **F. Le Dantec.** 'Les théories néo-Lamarckiennes,' i. [Variations appear in definite directions, and are the result of the interaction of the organic being and its environment; acquired characters may be transmitted.] **Goblot.** 'La vision droite.' **Speranski.** 'Essai sur l'origine psychologique des métaphores,' i. **J. Philippe.** 'Un recensement d'images mentales.' **H. Bergson.** 'Principes de métaphysique et de Psychologie' (Paul Janet.) Analyses et comptes rendus.

No. 12. December, 1897. **F. Le Dantec.** 'Les théories néo-Lamarckiennes.' (*Fin.*) [Disputes neo-Lamarckian theory of the part played by consciousness in the evolution of species.] **Ch. Féré.** 'L'influence de l'éducation de la motilité volontaire sur la sensibilité.' **Speranski.** 'Essai sur l'origine psychologique des métaphores.' (*Fin.*) Analyses et comptes rendus, etc.

REVUE DE MÉTAPHYSIQUE ET DE MORALE. 5e Année, No. 4. July, 1897. **R. Eucken.** 'La relation de la philosophie au mouvement religieux du temps présent.' [There is at present going on a movement in favour of a return to religion—a movement which one may combat but cannot ignore. This is no artificial product, but is based on the needs of common life. It must be regarded seriously. But what direction should the religious movement take? What exactly is the religious aspiration to be? Modern science has deeply modified all religious views. Philosophy should hold that eternal verity is not bound to the phraseology of a particular epoch, that it speaks not only in the modes of the fourth or thirteenth centuries, but also in those of the nineteenth and perhaps the twentieth. (A paper possessing not only intrinsic interest and value, but much significance as to the trend of European speculation and its practical influence at present. We regret that our space precludes any attempt at complete analysis.)] **G. Milhaud.** 'A propos de la géométrie grecque: une condition du progrès scientifique.' [A *résumé* of some of the writer's lectures delivered this year.—Geometry as treated by Euclid is a disinter-

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ested science: Euclid's treatment described and characterised. It is the fruits of preceding centuries of Hellenic geometry. The chief contributors to this study noticed in connexion with their respective works; Greek scientific work in its relationship to that of the Egyptians and Orientals, and in its connexion with Christian thought; contrast between the idealistic Greeks and the materialistic Romans, whose aversion to speculative science is notorious. Reflexions follow, showing how the application of science, great practical discoveries, increase of power over the kingdom of Nature, are all *subordinate to theoretic thought.*] **C. Bouglé.** 'Anthropologie et démocratie.' [Investigates the question as to the right of anthropology to decide questions of moral science. Craniometry, etc., cannot settle questions of right and wrong. "Social questions are not merely questions of *fact* with which science sufficiently deals, but further, and above all, questions of (moral) *principles.*"] Études critiques, etc.

5e Année, No. 5. September, 1897. **L. Brunschvicg.** 'Spiritualisme et sens commun.' [So-called common sense is the slave of language. The three propositions which generate scepticism, immoralism, and atheism, are: The True *is*: the Good *is*: God *is*. This conclusion is paradoxical only for pretended common sense, not so for the genuine common sense, which declines to separate intellectual activity from the intellectual, the moral, the religious, *life*. The paper is occupied with the explanation of this paradox.] **P. Lapie.** 'Morale déductive.' [A law, whether jussive or descriptive, is a universal proposition. Morality has for its objects actions and agents: its laws enounce the relations of these actions and agents. Moral law being necessary, and therefore universal, is based on, or is, the law of reason. *Evidence* is not the criterion of the necessary. Instances of moral axioms. The Idea of Justice is that of an exact proportion between our actions *inter se*, between them and their antecedents, between them and their consequences. Men often make mistakes in the use of moral theorems. Social and individual customs mislead. Custom is confounded with reason. Moral Law governs only the *actions* of men: their *passions* come under other laws. Actions and passions, however, are strangely blended in life. How far are we passive? How far active? "The rule formulated by Socrates, Plato, the Stoics, Descartes, and Spinoza, that no one is voluntarily wicked," holds without real exception. Only by defect of intelligence is the moral law violated. Does Induction confirm moral deductions? As moralisation increases, and actions conform more to law, Induction will more and more confirm deduction in morals. Moral progress is a process of levelling upwards. Meanwhile, the moral deductions can serve as our guides among the tangled facts of life. The law of Justice can help us to 'find our way' among the actions of man, as that of attraction does among the endless variety of natural movements.] **P. Lacombe.** 'Du comique et du spirituel.' [A minute and seemingly exhaustive survey and analysis of the circumstances and conditions which excite laughter. The use of laughter: it recalls us to the truth of our state: reminds us of our infirmities, moral, mental, or physical. It exhibits the old μηδὲν ἄγαν in full operation in our lives as a natural law. In life (and in literature too) laughter is the guardian and the vindicator of moral and mental equilibrium. This thesis is illustrated by references to Molière, Voltaire, Dumas, Mme. de Sévigné, etc., etc. An excellent study of a subject whose importance is too often ignored by grave philosophers.] Études critiques, etc.

Revue Néo-Scolastique. No. 15. **M. Nys** ('La notion de temps d'après saint Thomas d'Aquin,' *suite*), comparing together the *permanent*

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present and the *temporal* present, maintains that, though essentially distinct, they are so bound together in consciousness that without knowledge of the permanent present it is impossible to arrive at a knowledge of the temporal present. He discusses the concept of time as the measure of the relative perfection of entities, and as the measure of their contingent existences, and, under this last head, presents some applications of time-measure. **M. Hallez** ('La vue et les couleurs,' *suite et fin*) is of opinion that colour is primarily subjective, inasmuch as it is primarily a modification of the sentient subject. But, while primarily subjective, it is also in a secondary sense objective, seeing that it has a necessary relation to the object, arising from the fact that it is at once a representation and a mediate effect of the object. Challenging this contention, **M. Thiéry** ('La vue et les couleurs') maintains that the view of M. Hallez as to the subjectivity of colour cannot be accepted without disparagement to the senses as criteria of knowledge. **M. Pasquier** ('Sur les Hypothèses cosmogoniques') states in this his opening article the point of view from which he will approach his subject, and the manner in which he will discuss it. He will omit inquiry into the origin of life, and will restrict his consideration to the inorganic kingdom. His discussion of the subject will be rather popular than scientific. By way of preparing for his inquiry upon the formation of the universe, he briefly sets forth the actual condition of the inorganic systems. **M. de Lantsheere** ('L'évolution moderne du droit naturel') commences a discussion upon the evolution which has taken place in the theories upon the natural rights of man since the epoch of the French Revolution, and gives prominence to the share which the influence of Hegel's philosophy has had in this evolution.

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Bd. xiv., Heft 1 und 2. **G. E. Mueller.** 'Zur Psychophysik der Gesichtsempfindungen,' iv. [The excitatory processes in the optic nerve and their dependence upon the retinal processes. Simultaneous contrast; binocular colour mixture; the intrinsic grey of central origin; the question of intensity; assimilation and dissimilation.] **G. Abelsdorff.** 'Die ophthalmoskopische Erkennbarkeit des Sehpurpurs.' [History of the visual purple; successful attempt to observe it by the ophthalmoscope during life.] **G. Sergi.** 'Ueber den Sitz und die physische Grundlage der Affecte.' [The theories of James and Lange. The seat of emotion is the medulla; the cortex is concerned only in the becoming-conscious of the emotive state. All affective processes are peripheral.] **G. Heymans.** 'Quantitative Untersuchungen ueber die Zoellnersche und die Loebsche Taeuschung.' [Apparatus for Zoellner's figure; influence of angle of inclination, of length of cross-lines, of distance between cross-lines; previous explanations; variations of figure. Apparatus for Loeb's figure; similar experiments. Likeness of the two illusions shown: both are 'contrast effects'.] Litteraturbericht.

Bd. xiv., Heft 4. 3 und **G. E. Mueller.** 'Zur Psychophysik der Gesichtsempfindungen,' v. and vi. [The function of the rods. The two types of blue-yellow vision.—The net result of this long and thorough investigation (the articles are procurable in separate book form) is a recasting of Hering's theory, which now has all the advantages of detail that accrue to the revised Helmholtz theory, and all the advantage of universality that is possessed by Wundt's hypothesis. There can be no doubt that Prof. Mueller's theory must be accepted as *the* theory of vision for the time being; and it seems highly probable that many of the principles of explanation employed will take a permanent place in sense-psychology.]

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**W. Uhthoff.** 'Weitere Beitraege zum Sehenlernen blindgeborener und spaeter mit Erfolg operierter Menschen, sowie zu dem gelegentlich vorkommenden Verlernen des Sehens bei juengeren Kindern, nebst psychologischen Bemerkungen bei totaler kongenitaler Amaurose.' [Full description of three cases.] **K. Lange.** 'Gedanken zu einer Aesthetik auf entwickelungsgeschichtlicher Grundlage.' [Review of Groos' "Spiele der Thiere," with original suggestions. Classification of games. Games have no conscious end; play is for the pleasure of playing. This is made up partly of the feeling of power, partly of that of apparent activity (conscious self-deception). Play is explicable by the principle of natural selection; it is in part instinctive, in part the imitation of serious business (Wundt). Play of adults; as mother of art; as an important factor of national life.] **Heine.** 'Demonstration des Scheinerschen Versuches nebst Betrachtungen ueber das Zustandekommen von Raumvorstellungen.' Litteraturbericht.

Bd. xiv., Heft 5. **W. Preyer.** 'Farbenunterscheidung und Abstraktion in der ersten Kindheit.' [Colours, cones, etc., should be given concrete names (milk, butter, apple, dog, etc.). By following such a method we can examine colour discrimination without the name-fallacy. Children should not be taught in abstract terms: cause and effect, in particular, should be avoided, and functional interconnexion substituted for them.] **G. E. Mueller.** 'Ueber die galvanischen Gesichtsempfindungen.' [Literature. Experiments: method and sources of error. Results accord with the antagonistic-colour theory.] **E. G. A. ten Siethoff.** 'Die Erklaerung des Zeemanschen entoptischen Phaenomens.' [*Cf.* Bd. vi. The phenomenon is an entoptic complementary after-image, caused by the excitation of the percipient elements behind the region that surrounds the mac. lutea.] **R. Hilbert.** 'Ueber das Sehen farbiger Flecke als subjektive Gesichtserscheinung.' [Normal and pathological cases. No theory yet possible.] Litteraturbericht.

Bd. xiv., Heft 6. **S. Witasek.** 'Beitraege zur Psychologie der Komplexionen.' [1. Stern's direct and momentary change-perceptions are at bottom the same. The change-perception is a complexion, and consists of sensations and a 'consolidated' contents (Meinong). 2. How do ideas of complexions of higher orders arise? Take polyphonic composition, *e.g.* The constituents fall into a complexion, of themselves: but not the right one. Then comes the work of analysis (in Meinong's sense). Then, lastly, a psychic activity, a voluntary synthetising, whose directive factor is a by-product of foregone analysis. 3. What is the relation of the difference limen of constituents to that of complexion (or consolidated contents)? We often seem to distinguish complexions without being able to differentiate constituents: but all such cases are deceptive. On the other hand, we fail to distinguish complexions, where we can differentiate constituents; partly because we attend to the common aspects of the complexions, partly because analysis is imperfect.] **A. Jost.** 'Die Associationsfestigkeit in ihrer Abhaengigkeit von der Vertheilung der Wiederholungen.' [Critique of method. Results: if two associations are of equal strength but different age, repetition has a higher value for the older, and the older is less subject to decay with time. (The latter result is gained by interpretation of Ebbinghaus' figures.) In practice, when learning by heart is needful, it is best to learn the whole at once, *i.e.*, to distribute widely the repetitions of parts.] Litteraturbericht.

Bd. xv., Heft 1 und 2. **G. Wolff.** 'Ueber krankhafte Dissoziation der Vorstellungen.' [A valuable paper. (1) Detailed account of the patient Voit, already known to psychologists from the publications of Grashey and Sommer; (2) description, with autopsy, of a somewhat analogous

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case observed by Rieger in the Würzburg Institute. Voit stands as a test-case for the existence of a special apperception centre.] **T. Axenfeld.** 'Ueber den Brechungswerth der Hornhaut und der Linse beim Neugeborenen, nebst Bemerkungen ueber Ophthalmometrie an Leichenaugen.' **W. A. Nagel.** 'Ueber Mischgerüche und die Komponentengliederung des Geruchssinnes.' [Dependence of a mixed scent (simple quality: *cf.* vision) upon fatigue of organ and number and quality of components. Conditions of recognition of mixture.] **A. Faist.** 'Versuche ueber Tonverschmelzung.' [(1) The fusion degrees. Faist's list (octave, fifth, fourth, tritone, major sixth, major third, minor sixth, minor third, minor seventh, major second) accords well with the lists of Stumpf and Schischmánow. (2) Stumpf's laws. Consideration under eight heads: Kuelpe's criticism is for the most part substantiated.] **T. Lipps.** 'Bemerkungen zu Heymans' Artikel "Quantitative Untersuchungen ueber die Zoellnersche und die Loebsche Täuschung".' [Explanation of Loeb's illusion in terms of the writer's general theory.] Litteraturbericht.

Bd. xv., Heft 3. **J. Cohn.** 'Experimentelle Untersuchungen ueber das Zusammenwirken des akustisch-motorischen und des visuellen Gedächtnisses.' [A predominantly acoustic-motor memory suffers greater impairment from acoustic-motor derangement than does a predominantly visual memory. Where such impairment occurs, the visual memory steps in to aid the deranged acoustic-motor, so far as type allows. Every member of a rhythmical unit (acoustic-motor memory) is connected more stably with its position in the unit than with the absolute position of its unit: confirmation of Müller and Schumann. Method of testing memory type; individual differences.] **H. Münsterberg.** 'Die verschobene Schachbrettfigur.' [Explanation by irradiation.] **A. Meinong** and **S. Witasek.** 'Zur experimentellen Bestimmung der Tonverschmelzungsgrade.' [Faist worked by the indirect method of analysis upon an organ. The writers worked by the direct method of comparison upon violin (preliminary) and reed-series. Final result (intervals beyond the octave italicised): octave, *twelfth*, *double octave*, fifth, *major tenth*, fourth, major sixth, major third, minor third, *major thirteenth* (8 : 10), *minor tenth*, minor sixth, tritone (5 : 7), *minor thirteenth*, *eleventh*, *i. and octave* (2 : 7), *tritone and octave* (5 : 14), i. (4 : 7), tritone (32 : 45), *minor fourteenth*, *tritone and octave* (32 : 90), minor seventh, *major fourteenth*, *major ninth*, major second, major seventh, minor second, *minor ninth*. Eleven fusion degrees can be subsumed to Ebbinghaus' modification of the Helmholtz theory.] **L. Hofbauer.** 'Ueber die Ursachen der Differenzen zwischen wirklicher und scheinbarer Körpergrösse.' [Men seem to be taller than they really are if legs and neck are long in proportion to trunk. The phenomenon depends upon an optical illusion.] Litteraturbericht.

Bd. xv., Heft 4. **J. von Kries.** 'Ueber die Farbenblindheit der Netzhautperipherie.' [1. The distribution of brightness in the spectrum seen by the totally colour-blind zone of the normal eye (adaptation to light) is that of the normal spectrum, not that of the Purkinje spectrum or of the spectrum of the totally colour-blind eye (pathological); *i.e.*, the maximum lies in yellow, not in green. 2. The brightness distribution in the totally colour-blind zones of a normal and of a protanopic (red-blind; Hering's red-green-blind of the blue type) eye are entirely different. The same is probably true of the normal and of the deuteranopic (green-blind; Hering's red-green-blind of the yellow type) eyes. These facts tell against Hering. They are provisionally explained by an extension of the author's own theory.] **C. Stumpf.** 'Neueres ueber Tonverschmelzung.'

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[Critique of the investigations of Kuelpe, Faist, and Meinong and Witasek. 1. The degrees of fusion. 2. The fusion laws. 3. Method. As regards 1 and 2 the conclusions of the *Tonpsychologie* are (though not dogmatically) reiterated. Under 3 we have a defence of the method of massing.] Litteraturbericht.

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. Bd. CX., Heft 1. **Rudolf Eucken.** 'Zur Erinnerung an Immanuel Hermann Fichte.' [Fichte's philosophy was an attempt to harmonise the truths contained in existing systems, and to remove their conflicts. His metaphysic has for its central point the thought of Personality, to the problems of which he chiefly addressed himself. His services to ethics are particularly great. He thought of political reform as destined to come by the 'moralisation' of individuals in a christianised community.] **Oswald Külpe.** 'Zur Lehre von der Aufmerksamkeit.' [This paper occupies itself chiefly with two recent works (by George Heinrich and Harry E. Kohn) on the theory of Attention. Any such theory, to be sound, must be based on a precise description of the psychical phenomena of attention, etc., etc. Its definition, too, must be treated with care. Attention appears to be now a special 'Faculty'; again a special 'activity'; again a 'state' in which one finds oneself; and yet again a psychic 'content' side by side with other contents. Theories of attention differ according as the theorists emphasise one or other of these modes of regarding it. The connotation of this name is not as well fixed in psychological writings as is that of the names '*sensation* and *feeling*'.] **Julius Bergmann.** 'Die Gegenstände der Wahrnehmung und die Dinge an sich.' [An important article of nearly seventy pages long, whose fundamental tone appears in the first sentences: "If the ancient explanation of the conception of truth is correct—that a thought is true when it harmonises with the object to which it is directed—only actually existing things can be objects of true thoughts". A thing's independence of the idea (Vorstellung) which some one has of it, its self-subsistence over against this idea —or that whereby a thing stands in this relation (of independence or self-subsistence) towards the idea of which it is the object—this is what we call its *sein* or *dasein* or *existiren*, or (if we distinguish between real and apparent) its *an-sich-sein*. The relation of Body and Soul is discussed in the concluding part of the article. 'The whole material world—the object of one absolute consciousness—is a single being.'] **H. Schwartz.** 'Descartes' Untersuchungen über die Erkenntniss der Aussenwelt.' [This paper consists of a study which appeared first in the *Revue de métaphysique et de morale*, July, 1896, and is based on investigations of the philosophy of Descartes and Hobbes contained in a formerly published work of the writer.] Recensionen, etc.

PHILOSOPHISCHE STUDIEN. Bd. xiii., Heft 3. **W. Wundt.** 'Ueber naïven und kritischen Realismus,' iii. [Empiriocriticism takes from Spinoza its unemotional mood, its ontological method, and its fundamental question—"quid corpus ex solis legibus naturæ, quatenus corporea tantum consideratur, possit agere?" Its theory of the independent vital series takes over, *mutatis mutandis*, the Herbartian ontology and mathematics; its theory of the dependent vital series revives the 'self-movement of concepts' that characterises the Hegelian dialectic. In its application of a conceptual schema, and its emphasis on certain general concepts and their word-symbols, it shows a scholastic trend. Looked at contentwise, it is a form of materialism: the E-values are functions of, dependent on, the independent fluctuations of the system C. As materialism, it is a better theory

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than the brain mechanics of the physiologists or the mental organs of the anatomists. But (1) the idea of psychological function or dependence cannot be worked out in any strict sense; and (2) though Avenarius was honest in his endeavour physiologically to define the processes in the system C, the concepts of metabolism and nutrition, etc., were soon replaced by the very different notion of a substance fluctuating about a position of equilibrium. So much for philosophical parentage: on the side of natural science the 'principal co-ordination' lands us in difficulties. Avenarius assumes a 'potential' central term, behind human experience proper; but this, apparently following the analogy of 'potential energy,' really brings to life again the vicious scholastic *potentia*. Willy drops the potential and makes the co-ordination begin with life; the 'meanest worm' is enough to secure it. But time goes behind life; and we are not descended from all the worms; and they had no tradition. Mach's attack on the idea of causation is unwarranted; and Petzoldt's 'law of unequivocalness' cannot take the place of cause and effect. In psychology, empiriocriticism starts with a wrong definition; psychology becomes a part of physiology. True in only so much, that psychology and natural science differ in standpoint, not in object. As for psychical causation, Avenarius has three forms of 'logical dependence': the physical (conservation of energy), the mathematical logarithms and bases, and that of 'elements' and 'characters' on definite changes of the System C. (Why should the first and third be separated?) But, as we have seen, this last cannot be carried through. Avenarius himself speaks of the dependence as a parallelism! Nor can his other parallelism, that of the mechanical and amechanical interpretation of human movement, stand; experience reveals anything but an unequivocal relation between the terms. In sum, everything is to be looked at everywhere and always in the light of general metaphysical presuppositions; a schema of reality, made as simple as possible, must receive all the contents of experience; and any fact which conflicts with these principles is to be ignored. The theory, however, is so rigorously worked out that its errors arouse discussion of epistemological and psychological foundations; hence is it far from useless.] **F. D. Sherman.** 'Ueber das Purkinje'sche Phaenomen im Centrum der Netzhaut.' [The phenomenon is visible at the centre under the same conditions as at the periphery. The colourlessness, whether in direct or in indirect vision, cannot be regarded as due to the rods. The limen for red is lower than that for blue at the centre; towards the periphery the limina approximate. Adaptation for 20 min. and indirect vision raise the limina, the loss of red being greater than that of green and blue. Adaptation to dark does not change the proportional relation of red and blue that holds in adaptation to light.]

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Jahrg. xxi., Heft 4. **J. Kodis.** 'Der Empfindungsbegriff.' [Written from Avenarius' standpoint. Concept of sensation is meaningless unless we take into account relation of object apprehended to individual who apprehends it. It arises when we analyse total experience of percipient into the several constituents which depend respectively on the functions of the several organs of sense. This is sensation from a psycho-physical point of view. But the word has another and radically different meaning when we use it to denote the ultimate and elementary constituents into which the ideal representation of an object can be resolved. A valuable paper.] **G. Uphues.** 'Das Bewusstsein der Transzendenz.' [The old theory of the author with an addition. He attempts to explain reference to an object which is no constituent of the immediate state of cognitive con-

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sciousness by saying that it is due to "judgment".] **H. Schwarz.** 'Erkenntnistheoretisches aus der Religionsphilosophie Thiele's.' [Exposition and criticism of the epistemological views contained in "*Philosophie des Selbstbewusstseins und der Glaube an Gott, Freiheit und Unsterblichkeit*". Very interesting. Thiele has made a resolute attempt to show what determines the application of the categories to special experiences. The most primitive and simple refer to sense presentations by their very nature. The more complex do so through the mediation of the simpler.] Besprechungen, etc.

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. Band iii., Heft 4. **Paul Natorp.** 'Grundlinien einer Theorie der Willensbildung (v.).' [Likely to prove of practical value to the teacher. Deals with the relation of training and instruction, and with the special conditions and methods of educating the will in the home and in the school. We hope Dr. Natorp's articles will appear in book form.] *Jahresbericht* über die Erscheinungen auf dem Gebiete der systematischen Philosophie: I. **Paul Natorp.** 'Bericht über deutsche Schriften zur Erkenntnistheorie aus den Jahren 1894 und 1895.' II. **August Baur.** 'Übersicht über die deutsche religionsphilosophische Litteratur aus den Jahren 1895 und 1896.' Zeitschriften, etc.

PHILOSOPHISCHES JAHRBUCH. Bd. x., Heft 3. **Adloch.** 'Der Gottesbeweis des hl. Anselm.' [The writer continues to show that between Anselm and Aquinas the difference was only one of expression. Anselm never says that God's existence is self-evident. His opponents either misunderstand his arguments or his character. His doctrine is expounded by the writer in terms of modern philosophy.] **Schutz.** 'Der Hypnotismus.' [In this concluding paper the causes of hypnotism, and its physiological and psychical phenomena, are examined, together with their analogies with other known phenomena of nature; and the practice of hypnotism is strongly condemned as dangerous to body, mind and morals, and of no real medicinal value.] **Straub.** 'Gewissheit und Evidenz der Gottesbeweise.' [The writer states in conclusion that the most striking proof of God's existence is that called teleological; says a few words on the new *entropological* argument, based on the modern assumption of dispersion of energy (heat, *e.g.*) throughout the world; points out that the facts of miracles are as true as any in history, and that they prove God's existence; that the universal belief of mankind is equal to a law of nature; and that the demonstration of God's existence is the foundation of faith.] **Linsmeier.** 'Inhalt der chemisch-physikalischen Atomhypothese.' [This second and last article deals with questions concerning ether; whether atoms are elastic or not; what are the forces inherent to them; whether there is or is not one primordial element; and concludes by saying that those chemists who deny the reality of atoms use arguments which go against the reality of matter.]

RIVISTA ITALIANA DI FILOSOFIA. May-June. **A. Valdarnini.** 'Il Metodo e la Dottrina della Conoscenza in Galileo.' [The methods and results of Galileo are compared with those of his contemporaries, whom he is shown to outdistance, philosophically, in penetration and breadth of view. Though a "Realist," he was free from one-sidedness, and the writer endeavours to show that he admitted many of the formulæ claimed as the exclusive possessions of the *a priori* school, such as the principle of contradiction and the *necessity* of causation. Possibly, from his great

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reputation as a scientist, Galileo's method may be of more interest than his results. This is described as "comprehensively experimental"—the characteristic of comprehensiveness distinguishing it from the more limited experimental methods of other "naturalists" of the time. It had five fundamental points: (1) rational axioms, "which, like precious gems, adorn the mind"; (2) mathematics, including geometry; (3) experience; (4) judgment and reasoning; and (5) the opinion of the learned.] **G. Marpillero.** 'Le Idee della Vita e della Morte nei Bambini.' [A classification of the answers of 511 children, ranging from six to thirteen years of age, to various questions put to elicit their opinions upon life and death. The unconscious humour of some of the answers is as marked as their psychological value.] **G. S. Felici.** 'Marcello Palingenio Stellato.' [An account of the philosophical position and opinions of Stellato and the part he played in the Renaissance.]

RIVISTA ITALIANA DI SOCIOLOGIA. Roma: Fratelli Bocca, 1897. In Italy, as almost everywhere else, the class of subjects usually included under the comprehensive and as yet somewhat indefinite name—Sociology—is exciting an increasing amount of attention. The establishment of the review before us is in many respects a proof of it. This review, the first number of which was issued in July, will be published in Rome every two months, and will contain between 120 to 140 pages of printed matter. It is edited by a council of six, among whom are some well-known names, and it has secured the co-operation of a considerable number of highly qualified contributors both at home and abroad. The editors issue a very sensible programme with the first number. If they work the review on the lines laid down in this programme it will be a valuable addition to the stock of periodicals dealing with sociological subjects. In their programme the editors very truly point out that Sociology has not as yet acquired a clearly defined position among the sciences; it has no clearly defined point of view: it dwells too much in the domain of sterile generalities: it is too fond of drawing artificial comparisons between biological and social phenomena. It will be the object of the *Rivista Italiana di Sociologia* to avoid those pitfalls. The supreme object of the *Rivista* will be to get at sociological laws, to co-ordinate these laws and to get hold of general principles which will explain the course of social evolution as a whole. In order to attain this purpose the *Rivista* will avoid sterile generalities; it will confine itself to an accurate examination of facts relating to the origin and development of social institutions and social phenomena. In a word, it will deal with man in collective life. It will investigate the manifold forms of human association from the most rudimentary to the most advanced. Every number of the review will contain original articles, brief notes and communications on current questions, reviews of books on social subjects, a summary of the principal reviews. The first number is an excellent one. It contains an article by A. Loria on the theory of population in its newest phases; an article by Durkheim on suicide in its sociological aspect; a paper on the origin of human society by L. Gumplowicz; a paper on the future of democracy by G. Tosti, besides other contributions of considerable weight and interest. It is to be hoped that the *Rivista* will secure a wide circle of readers.

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# X.—NOTES.

## ON THE TEMPERATURE-SENSES.

### II.

### The Sensation "Hot".

A *résumé* of observations made at the Physiological Laboratory of Upsala.[1]

#### INTRODUCTORY.

In a previous paper[2] I have, as I believe, corroborated the truth of *v. Frey's* discovery that the cold-spots of the skin give sensations of cold, not only when stimulated by cold, but also when stimulated by a certain amount of warmth, for instance by metal points of 45-50° C. and upwards. These sensations are by *v. Frey* called *paradox sensations of cold.*

It is consequently highly probable that, when *surfaces* of the skin are stimulated by metal surfaces of high temperatures, sensations of cold even then will ensue. This is in fact the case, which in the following also will be proved. But warm metal surfaces also originate sensations of warmth. The question therefore arises: *What is the result of these simultaneous sensations of warmth and cold, localised to the same place?* Do they, to our consciousness, still appear separated from each other? Or is only one of them perceived? Or do they fuse into quite a new and different sensation?

If a part of the skin is stimulated with pieces of metal (for instance brass) of different temperatures above that of the skin, the one warmer than the other, it will be found that, when you have arrived at what would be called "very warm," the next sensation will, at least on a good many parts of the body, be declared to be "hot". Some will also declare this hot sensation to be something different as to *quality* from a mere warm sensation and further that a sensation of pain *need* not accompany it. If the temperature is raised much higher, pain will of course be added to the hot sensation.

*Is this hot sensation the result of simultaneous warm and cold sensations?* If so, the hot sensation would probably arise as soon as the temperature of the brass piece is high enough to awake cold sensations. To ascertain in a fully *exact* way if this is the case is hardly possible. On the one hand it is very difficult to decide at what temperature the cold-spots give rise to paradox cold-sensations, as *mechanical* stimulation also may take place. *v. Frey*, however, asserts this temperature to be, for the skin at large, +45° C. I have not tried to fix this figure. On the other hand it is very difficult to say just when warm sensations end and hot begin. In my elbow-joint (inner side) I have found the hot sensation

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pretty distinctly at +48° and on my forehead at +52°, when using a small cylinder of brass. *v. Frey* asserts that on mamilla his paradox sensations arise already at +40°. Just on this place I have, curiously enough, found hot sensations already at this low temperature, whereas, as already put forward, a much higher temperature is needed for the skin in general. But I do not find it advisable to try to solve *definitely* the genesis of the hot sensation on these lines. Enough however has been put forward to justify an examination of the hot sensation by other and better means as to its being the product of simultaneous warm and cold sensations.

### THE PSYCHOLOGICAL ANALYSIS OF THE HOT SENSATION.

Pure introspection tells me not only, 1, that "hot" is something different, in regard to *quality*, from warm, and, 2, that hot very well can be experienced without pain (although pain very often *does* accompany it) but also, 3, that hot is a simple sensation, which *generally* cannot be cut up or analysed into component parts. I know quite well that I will meet opposition from many in regard to points 1 and 2. But it must be remembered that taking, as I do, a special interest in examining that peculiar sensation which according to *my* way of feeling lies so to say between "warm" and "smarting or burning pain" (caused by thermal stimulation), I only deem it best to *call* this particular range of sensations "hot". I therefore hope it will be understood that possible criticisms must be directed more against the *existence* of such a range and against my investigations of the sensations, which make up this range, and less against the advisability of my confining the word "hot" to these particular sensations. Still I wish to maintain that my way of defining "hot" is the right one.

Before I go to experimental investigations of the hot sensation, I must say a few words about

### DIFFERENT WAYS OF OBTAINING SENSATIONS OF COLD WITH WARM OBJECTS.

In order to prove that *surfaces* (and not only spots) of the skin may be made to give cold sensations when stimulated with warm objects, I have made use of *Thunberg's*[3] silver-plates, otherwise invented and constructed for determining the *minimum perceptibile* of the warmth-, cold- and pain-senses. These consist of thin plates of silver, from $\frac{3}{1000}$ to $\frac{1}{2}m/m$ thick, having a surface of about 4 square $c/m$ and fastened to bits of cork. If heated to +100° C., plates of $\frac{3}{1000}$ $m/m$ and above will, when applied to certain parts of the skin, for instance on the front part of the thigh, the inner surface of the elbow-joint, etc., occasion first a quick, very short sensation of cold and afterwards a sensation of warmth or heat, which may be—if the plate is thick enough—accompanied by pain. The same phenomena can also be obtained with any piece of metal of high temperature although with far less ease, the amount of heat, *i.e.* stimulus, applied being of course in this way very difficult to determine. The phenomena, caused by the shorter reaction-time of the cold sensations in comparison to the warm, prove our point to our perfect satisfaction.

The same can also be shown in a perhaps still clearer way by decreasing the irritability of the organs of the warmth-sense through their *exhaustion*.

This can be done in two ways:—

*First exhaustion-experiment:* After having exposed myself (in a bath) to warm water (37 – 39° C.) for some length of time, I passed my foot quickly through very hot water. My first feeling was a sensation of cold so distinct and so pure as to be indistinguishable from sensations received from

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cold water; upon this followed, after some fractions of a second and *after the cold had sunk away*, a sharp and pure smarting sensation of pain. No sensation of warmth occurred. This experiment is interesting not only because it proves the truth of our proposition, but also because it allows us to obtain pure and isolated sensations both of cold and of pain from hot objects.

*Second exhaustion-experiment:* If a piece of metal of + 52 – 54° C. is laid on the volar side of the fore-arm, the hot sensations which first ensue decline after a time. Then pricks or currents of cold will come forward. This is easily explained, if we assume that the warmth-sense is more easily exhausted than the cold sense by the hot object. The cold sensations, which, when the stimulus was first applied, blended together with the warm sensations into a hot sensation, do not later on completely fuse together with the warm sensations but "break through" so to say.

We will now turn our attention to some, in my opinion, still more convincing forms of

THE EXPERIMENTAL ANALYSIS OF THE HOT SENSATION.

The first investigation to be made must regard the question *if hot sensations can be obtained on places where the cold-spots are absent, i.e.*, where no cold-sense exists. If my hypothesis is right, only warm sensations are to be had on such places. Although difficult, it is still quite possible to find and map out places where no cold-spots, but only warm-spots exist. One half to one square centimetre must however suffice, as larger areas are difficult to find. *Such places are now found to give only warm sensations; if the temperature of the stimulus be further increased, pain but no heat is added to the warm sensations.*

The following observation is worth notice. If a place with badly developed warmth-sense but strong cold-sense (for instance the upper parts of the forehead) be stimulated with pieces of metal, the one warmer than the other, it will be found that after the sensation "slightly warm" has been got, the next sensation will be "hot"—no intermediate stage of "quite warm" and "very warm" being obtainable. This shows also very clearly that a hot sensation is *not* the same thing as a very *warm* one.

*Does now the hot sensation come out on places where the warmth-sense is absent?* This is the other side of the question. *No, on such places only cold but no hot sensations are obtainable.* The warm sensation is consequently also a necessary factor in the hot sensation.

Any hypothesis that the hot sensations might be due to specific "hot-spots" or "hot-nerves" must, of course, after this, fall to the ground. Besides, no other temperature-spots than warm- and cold-spots can be found, and these give, when stimulated separately, no other sensations than warmth or cold. Only when *both* kinds are stimulated simultaneously can hot sensations be obtained.

*Thunberg*[4] has also had reason to inquire into the character of the hot sensation. This investigator wished to know what kind of sensations would arise, if a part of the skin was stimulated simultaneously by cold and warm objects, each of which gave rise to a continuous thermal sensation, localised to the same common surface. This was accomplished by applying warm and cold spiral tubes to the skin, the coils of the one kind of stimulus lying between those of the other. If these coils were applied in a certain manner, it was found that you got a sensation "as if the temperature was suddenly raised and a feeling of 'hot' ensued," coupled with the sensation of a burning sensation being about to arise. As far as I have been able to form an opinion of and analyse these curious sen-

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sations, I believe *Thunberg's* description to be right. Not being sure—but still suspecting—that cold sensations can be had from hot objects, *Thunberg* did not then wish to put forward any opinion as to the importance of the cold sensation in regard to the building up of the hot sensation. But the existence of the paradox sensations of cold having been proved, this experiment of *Thunberg* now appears to show very nicely the important *rôle* played by the cold sensation in this respect.

MISCELLANEOUS.

I believe I have been able to show that hot objects generate warm *and* cold sensations, which generally fuse into a new, single and uniform sensation: hot. Single and uniform, however, only to our consciousness, as by artificial means hot can be shown to be the result of different simultaneous sensations.

The hot sensations have not the same character on the entire surface of the skin; on some parts they can only with difficulty and in an imperfect way be obtained. The character of the hot sensation depends in fact upon the strength of the warmth- and cold-sense relatively to each other on the place in question.

Rather often people are heard to say that they get burnt or get feelings of heat from metal of very low temperatures. I have however stimulated my skin with metal (brass) of various low temperatures (down to − 70° C.) without any sensations of warmth or of heat proper resulting. Very low temperatures, − 50 to 70° C., generate besides cold a sharp, superficial smarting sort of pain (in addition to the deeper, duller pain which temperatures of − 10 to 20° C. generate). I believe, therefore, that these smarting sensations plus cold are mistaken for being the same as those hot, *i.e.* warm and cold sensations, plus sensations of pain, which very hot objects awake.

What *practical worth* have these hot sensations? As they differ in *quality* from warm sensations, they of course facilitate our distinguishing between objects of different degrees of warmth or heat. As however the distance on the temperature scale, between where hot sensations and where sensations of pain begin, is short, comprising only a few degrees, these latter sensations soon help us in this respect. The range therefore, where the hot sensations reign and are of practical value as pure sensations, is generally comparatively small. But on such places, where the *minimum perceptibile* of the pain-sense lies rather high, and where the cold-sense is strong and the warmth-sense weak, as in the cavity of the mouth and on the tongue, the range of the pure, not pain-coloured, hot sensations becomes larger and their practical importance greater.

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[1] Alrutz, Sydney: A full account of the observations related in this paper is to be found in *Upsala Läkareförs. Förhandlr.*, 1897, "Om förnimmelsen hett," p. 340.

[2] "On the temperature-senses, I.," MIND, July, 1897.

[3] Thunberg, T.: "Bidrag till kännedomen om hudsinnenas fysiologi," *Upsala Läkareförens. Förhandlr.*, 1895, Bd. xxx.

[4] "Förnimmelserna vid till samma ställe lokaliserad, samtidigt pågående köld-och värmeretning," *Upsala Läkareförs. Förhandlr.*, 1896, p. 489.

SYDNEY ALRUTZ.

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# MIND

## A QUARTERLY REVIEW

OF

## PSYCHOLOGY AND PHILOSOPHY.

## I.—THE REGULAE OF DESCARTES.[1] (I.)

BY BOYCE GIBSON.

### INTRODUCTORY.

WHEN Descartes died at Stockholm in the year 1650, an inventory was made of the various papers and treatises which he had left behind him. Among these figures as 'an unfinished work' the 'Regulae ad directionem ingenii'. M. Chanut, the French Ambassador to the Swedish Court, who was present when the inventory was taken, assigned all these papers to the care of M. Clerselier, an old friend of Descartes. 'Among the works,' says Baillet,[2] 'which M. Chanut put into the hands of M. Clerselier, none is more important and perhaps none more complete than the Latin treatise which contains the "Rules for guiding our minds in the search after Truth" ("Règles pour conduire notre esprit dans la Recherche de la Vérité"). Of M. Descartes' manuscripts it is the one in the publication of which the public is likely to be especially interested. The reading which M. Clerselier gave of it to a few admirers, and the testimony of the renowned author of the *Art of Thinking* to the good use to which it can be put, have already roused public opinion to a sense of its value and worth.'[3]

[1] Read before the Aristotelian Society.

[2] *La Vie de Monsieur Descartes* (Paris, MDCXCI.), lvii., chap. xx., p. 404.

[3] When Baillet wrote these words he had Descartes' manuscript before him. (See his words to this effect in the margin of his work, book i., p. 182: 'C'est un MS. Latin, non achevé, qui est entre nos mains'.) Baillet had got it from Legrand, who was at the time engaged in preparing a complete edition of the works of Descartes, and Legrand had got it from Clerselier, in whose keeping were all the papers of Descartes.



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Ten years or so later, in 1701, this little Latin treatise was published at Amsterdam, together with other papers of Descartes. The text has since been reprinted and is to be found in M. Adolphe Garnier's edition of the philosophical works of Descartes, published in 1835.

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## Authenticity of the Regulae.

It may seem strange to such as are not familiar with the spirit and manner of Descartes that no mention of the Regulae should occur in any of his writings.[1] Descartes, however, far preferred the search after truth to its propagation when found. 'I have a natural detestation,' he writes, 'to the business of making up books.'[2] This disinclination was strengthened by the consciousness that publication involved controversy and loss of leisure. On one occasion he refuses point-blank to give any promise of publishing his writings during his own life-time 'lest the oppositions and controversies they might provoke, or even such reputation as they might win for me, should lead me to squander the leisure which I propose to devote to my own instruction'.[3] It was further Descartes' way never to divulge the principles of his philosophy and of his method more than was absolutely necessary.[4] His *Discours* confessedly contains only a part of his method;[5] in his *Geometry* he is intentionally concise, in order, as he puts it in that work, that his readers may have the privilege of practising his method by filling up themselves the gaps in the reasoning,[6] or, as he declares in

[1] For a possible allusion, however, see Letter to Mersenne, dated 15th April, 1630.

[2] *Discours de la Méthode.* 6ième partie, § 1. *Cf.* also ed. V. C., ix., 414.

[3] *Discours de la Méthode.* 6ième partie, § 4.

[4] *Cf. Discours de la Méthode.* 6ième partie, § 8.

[5] See ed. V. C., vi., 276.

[6] *Cf.* V. C., v., p. 409; also *cf.* vi., pp. 299-301 and Regula X., p. 61.

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confidence to a friend, that no one may say that there is nothing new or striking in his discoveries.[1] Finally, as we see from the closing words of his commentary on Rule IV., his aim in composing the Regulae is an essentially personal one. 'Before I make my move from Mathematics,' he writes, 'I shall do my best to bring together and arrange in methodical order whatever has struck me as worthy of record in my previous studies, and this partly that as my memory weakens with advancing age, I may, out of this little book, with convenience to myself, recall at need these past results, and partly that I may take the burden of them off my memory and so bring a freer spirit to bear on my future studies.'

This reticence of Descartes with regard to the Regulae does not therefore prejudice in any way the question of its authenticity. Of this authenticity no reasonable doubt can be entertained. Restricting ourselves merely to external evidence, we have not only its official inclusion in the inventory of 1650, its acceptance by Clerselier, who must have known Descartes' handwriting as well as he knew his own, and its unhesitating acceptance by Leibnitz in 1676, but we have also a remark of Arnauld in the *Port Royal Logic*,[2] which is quite conclusive. In a footnote[3] we read: 'The greater part of what is here said of questions is taken from a MS. of the late M. Descartes, which M. Clerselier had the goodness to lend me'. On reading further we see at once that the MS. referred to is none other than the Regulae. If more evidence were wanted it could be gathered from the style and contents of the treatise itself. Descartes' Latin follows the train of his own thought rather than the genius of the Latin language, and has an unmistakable Cartesian smack about it,[4] a peculiarity obviously distasteful to Leibnitz, for the great majority of the emendations in Leibnitz' MS. copy are in fact mere corrections of Descartes' Latin. The substance of the Regulae is equally Cartesian. Not only do the views it includes harmonise completely with what we know of Descartes' views elsewhere, but the unfinished MS. finds its natural continuation in the *Géométrie*, published originally in 1637.[5] The genuineness of the Regulae may therefore be taken for granted.

[1] *Cf.* Cantor, *Vorlesungen über Geschichte der Mathematik*, Zweiter Band, Zweites Theil, Kap. lxxvi., p. 723. Leipzig, 1892.

[2] Translated by Baynes. Edinburgh, 1861.

[3] *Ibid.*, p. 309.

[4] *Cf.* M. Aimé Martin's preface to his own translation.

[5] This connexion between the Rules XVII.-XXI. and the opening pages of the *Géométrie* has also struck M. Millet, *Histoire de D. avant 1637* (Paris, 1867).

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## Date of the Regulae.

The same degree of certainty cannot unfortunately attach to the question of its date. M. Millet, who has a long discussion on this point, is convinced that the Regulae cannot have been written later than 1629. He is equally convinced that it cannot have been written earlier than the end of 1628 or the beginning of 1629. His main reason for fixing on the year 1629 as the most probable date is that according to Descartes' own confession (*cf.* end of Rule IV.) the work is written during a period of transition when the author is preparing, after his long tutelage in Universal Mathematic, to turn his attention to the loftier science of Metaphysics, and that this turn in his career coincides with the year 1629. Writing to Mersenne in April, 1630,[1] from his newly adopted country, Holland, he says: 'I think I have found how to prove the truth of Metaphysics in a more evident way than in the case of the demonstrations of Geometry. During the first nine months that I have been in this country, I have worked at nothing else.'[2] There is thus very good reason to suppose that the Regulae were composed by Descartes about the year 1629.

## Plan of the Regulae.

The Regulae is a little unfinished work on Logic and Scientific Method. Its author originally intended it to contain thirty-six rules in all, or three books of twelve rules each.[3] Book i. is a propædeutic, and its rules are so many injunctions for preparing the mind to grasp intuitively and with a certain keenness of insight the truth of propositions that are either ultimate premises or conclusions that follow straightforwardly from these premises. It forms, in Descartes' own words, 'the necessary prelude of all mental improvement'. Book ii. deals with questions whose meaning is perfectly plain though their solution is still unknown. Here the premises, including the method, criterion and bases of inference, are all given, but the conclusion is apparently hard to unravel. The aim of this book is therefore to propound a method for simplifying this process of unravelling, for reducing it in fact to the ordinary processes of straightforward deduction. Where the meaning of the question is not quite clear, in particular where the basis of the inference

[1] Victor Cousin, vi., 109.
[2] *Cf.* also *Discours de la Méthode*, close of the third part.
[3] See Regulae, § 96.

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is rendered uncertain by the complex nature of the experience upon which it relies (*cf.* § 53), the question calls for a different treatment. The method of investigation here adopted Descartes proposes to set forth in a third and last book of twelve rules.

Of these three books, only one and a half were ever finished.[1] Instead of thirty-six Rules we have only twenty-one, and of these the last three are mere enunciations. And yet, despite its unfinished character, this little treatise of Descartes has never failed to win the admiration of all who have had their attention drawn towards it, from Arnauld and Leibnitz down to writers of the present day. M. Cousin says of it:[2] 'These Regulae are as forceful as the *Meditations* and the *Discourse on Method*, and perhaps even surpass these works in lucidity of treatment. . . . They might have been written yesterday and composed expressly to meet the requirements of to-day.' M. Millet's enthusiasm is quite boundless.[3] 'This treatise,' he writes, 'is of all existing treatises on Logic, without even excepting the *Organon* of Aristotle or the *Logic* of Hegel, the most profound and the most wonderful.'

## The Regulae as Descartes' Logic.

The Regulae undoubtedly contain the fullest and clearest statement of Descartes' logical convictions. Without disputing Mr. Baynes' remark[4] that the work which is, *par excellence*, the logic of the Cartesian Philosophy is the *Port Royal Logic* itself, the Regulae undoubtedly remain the best exposition we have of that natural logic,[5] under the guidance of which Descartes' whole thought lived and moved. After pointing out that different persons had respectively identified the Logic of Descartes' Philosophy with the *Discours*, the *Géométrie*, and the *Méditations* (of which Gassendi had written an *abrégé* under the title of *Logica Cartesii*), Baillet goes on to say:[6] "We know of certain authors who have spoken of M. Descartes' Logic as a work which has not yet seen the light. Father Rapin, for instance, had heard it said that Descartes had begun a Logic which he never finished, but that a few fragments of the treatise still

[1] *Cf.* Garnier, *Oeuvres Philosophiques de D.*, t. iii., p. 437.
[2] *Oeuvres de Descartes*, Introduction.
[3] M. Millet, *Histoire de Descartes avant 1637*, p. 162.
[4] The *Port Royal Logic*, Introduction by the translator, p. xxix.
[5] Descartes' own expression; *cf.* V. C., x., p. 118.
[6] *La Vie de M. Descartes*, liv. iv., ch. ii., p. 282.

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remained in the possession of one of his disciples, and were entitled 'Erudition'. . . . A rigorous search was made among his papers with a view to the discovery of this hypothetical Logic, but there was nothing found bearing the title of 'Erudition,' nor yet anything which could be looked upon as Logic, with the single exception of his 'Rules for the guidance of the mind in the search after Truth,' rules upon which a most excellent Logic may be modelled and which undoubtedly contain a considerable portion of his method." The *Discours de la Méthode*, as Baillet goes on to say, contains only a very small part of this same method, and so cannot compete with the Regulae for the title of Descartes' Logic. In the *Discours* in fact, as its name implies, Descartes had confessedly no wish to teach his Method but only to speak about it.[1] He simply points out that his success in the solving of questions was entirely due to his exact observation of a few self-enjoined precepts, which he briefly enunciates in the form of four cardinal rules.[2] Beyond this, if we except certain provisional rules of conduct deduced from these rules,[3] and an interesting by-the-way in part vi., § 3, the *Discours* tells us little or nothing of the famous method he is proposing to talk about. For a clear understanding of the principles of Descartes' natural logic, and the exact bearing of the four rules given in the *Discours*, we must turn to the 'Regulae ad directionem ingenii'.

## The Natural Method of Descartes.

### I.—*The Processes it Presupposes: Intuition, Deduction, Enumeration.*

Intuition and Induction are first presented to us by Descartes[4] as the only two mental processes fitted to secure us a knowledge of things without any fear of deception. *In this rule*, if the text be accurate, there is no distinction in Descartes' mind between Induction and Deduction: he uses the two words indiscriminately one for the other. The distinction between the two processes of Intuition on the one hand and of Deduction or Induction on the other is summed up by Descartes in this same rule under two heads: (1) deduction involves a certain movement of thought; (2) the certainty of deduction depends to a large extent on the

[1] VI., 138.
[2] *Cf.* iii., pref., p. 25.
[3] See Descartes' own preface to the *Discours*.
[4] 'Regulae ad directionem ingenii sui,' Reg. III.

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memory. At the same time Descartes shows very plainly that the mental process *par excellence* is Intuition, and that Deduction is only necessitated by the fact that our power of grasping connexions together in one and the same act of thought is, at the outset at least, very limited. One of Descartes' main preoccupations is in fact to insist on a course of mental training, the constant tendency of which will be to widen this power of simultaneous grasp and put away as far as possible the necessity of entrusting to memory what has been already laid hold of: in § 15 we see that it is only remote conclusions which Descartes is willing to hand definitely over to the care of Deduction.

In connexion with Descartes' view of deduction itself, there are two points here which we must carefully notice. The first is Descartes' conviction that as a mere process of inferring one truth from another with which it is directly connected, it is a process so essential to the very working of thought that it could never be wrongly carried out by any one. This being the case, we notice in the second place that when Descartes speaks of deduction *as a process*, he has in mind not the individual steps by which one is led to infer from some accepted datum a remote conclusion, but the series of steps taken as a whole. It is a movement which is continuous and uninterrupted, and has an intuitive grasp of each separate step. Hence it is that Descartes furnishes no rules of inference. In Rule XII., § 96, he definitely states that the deduction of a consequence from some one simple truth can be made without the help of any rules. The problem of simple deduction resolves itself then in the case of Descartes into the problem of bringing, by means of persistent and methodical practice, all the links of a long chain of connexions into one and the same intuitive field of view. Descartes is in fact interested not in the explanation of deduction, but in its liberation from the uncertainties of time and memory, and its absorption into intuition itself. The process by which this transformation is practically accomplished is that of a mental *enumeration*, whereby the mind, by persistently repeating over to itself the various steps in the deductive process, gradually acquires the power to pass so rapidly along the series of steps that the passage is quasi-instantaneous.

The first form in which 'Enumeration' appears to us in the Regulae is therefore that of a rapid general review of a series of facts successively deduced from one another, a conception which forms the connecting link between Rule III. and Rule VII., where the questions of Induction and Enu-

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meration meet us once again (§§ 34, 35). Here Induction, distinguished at last in some degree from Deduction, is made synonymous with Enumeration, whilst at the same time the conception of enumeration itself is much enlarged. As for deduction, Descartes has ceased to look upon it as a process, and throughout his discussion of induction treats it as a result, so that it 'no longer denotes any movement at all, but only the final result of a movement' (§ 67). In considering the mental *processes* which can alone ensure complete certainty of thinking, Descartes is consequently free to neglect deduction altogether. Hence when the question arises: 'What are the mental operations by means of which we can grasp a result as a true derivative from what is ultimately simple?' Descartes answers that there are only two such operations: intuition and enumeration. When the whole sequence of connexions referred to has by a repeated movement of the mind all along its line been included at length as a whole in one glance, the mental operation becomes one of intuition. When this is impossible, the lines of inference crossing and subdividing to an unintuitable extent, enumeration must be resorted to in order to supplement intuition; but even here enumeration is often only a provisional substitute for intuition, for by repeated rehearsal the enumeration can often be so quickened as to glide at last into intuition.

We have already seen how Descartes is inclined to look upon enumeration as a process by means of which results successively subordinate to one another are rehearsed in such a way that the successive intuitions which characterise the movement of deduction blend ultimately into one continuous intuition, just as a series of intermittent flashes melts into one continuous beam when the flashes succeed each other with sufficient rapidity. But propositions are not always successively subordinated to one another: they are frequently disjointed and co-ordinate. A stream of thought will frequently represent the contributions of many tributaries, or to change at once the thought and the metaphor, a thought that grows and divides will often shoot off into a number of branches, similarly dependent on the main stem. In either case, whether we start with the many tributaries and work back towards the main stream, or follow some main trunk into its branches, it is of the utmost concern, if our pursuit is to be scientific, that we should make the process as compact and as complete as possible; or to follow Descartes' thought more closely, the ideal of a complete science requires that such collective estimates or

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Enumerations, as he proceeds to call them, should in every case be methodical and adequate. Enumeration of this kind is indispensable if our science is to be complete.[1]

The seventh rule is devoted in the main to the study of enumeration, conceived of thus as a thorough investigation of all that concerns the question at issue, a kind of natural classification, at once adequate and complete, but which may be abbreviated to any extent so long as brevity is consistent with thorough accuracy of treatment. It is, however, no mere collection of instances: so long as the various heads under which we seek to bring our discussion do not exhaust the series of possible divisions, there can be no question of enumeration in Descartes' sense of the word. The division of triangles into acute-angled, right-angled and obtuse-angled triangles is an instance of what Descartes considers as a perfectly satisfactory enumeration, an enumeration, that is, which by its very nature is exhaustive. Finally a third function is allotted to enumeration by Descartes when he defines it no longer as a thorough laying out or investigation of the question at issue, but as an *inference* drawn from an aggregate of separate facts, or from a number of disjointed propositions (§ 38).

This shifting of Descartes' point of view in his treatment of enumeration, though somewhat puzzling at first, is quite consistent with the very general description given of it in § 38: 'All we mean by adequate enumeration or induction is that by means of which we come to surer conclusions about the truth than can be reached by any other kind of proof outside that of simple intuition'. It may therefore apply just as well to the inference drawn from a certain body of facts as to the thorough investigation which precedes the inference, or to that exhaustive summing up of the co-ordinated facts which precedes the investigation. These are stages in the process of enumeration, and they dovetail one into the other. If the inductive inference is to be scientifically drawn, the investigation which precedes it must consist in so arranging the various heads or classes that the enumeration shall be adequate and methodical. Thus to show that the rational soul is not material, all bodily forms should be simultaneously classed under certain heads in such a way as to make it obvious that the rational soul does not belong to any of these groups (§ 40). So again in deciphering hieroglyphics, the elements should be so investigated and arranged that the inferences drawn from

[1] § 36.

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them should flow as far as possible from the very arrangement itself (§ 63).

In speaking of enumeration (Rule VII., § 36), Descartes makes the following remark: 'It is by the help of enumeration alone that in any and every instance we are able to pass true and certain judgment, so that nothing entirely escapes us, and we seem to have some positive knowledge of all points'. Comparing this with Descartes' assertion in Rule IV., § 18, to the effect that the process of deduction properly carried out will enable us to arrive at a knowledge that is all-inclusive, we see that enumeration, considered in its final aspect of 'inference,' is after all only a form of the deductive process, the word 'deductive' being here used in the very general and fundamental sense in which it is used in Rules III. and IV., as thought moving methodically from one fact to another with intuitive consciousness of the absolute certainty of each step. Adapting ourselves as we must to Descartes' elastic handling of the terms he uses, we come back then quite naturally to his statement in § 18, that it is only through rational intuition and deduction that any science is to be had. Science requires that we should carefully note two points: 'Never to put false for true, and to reach to a knowledge that is all-inclusive' (§ 18): true intuition secures the observance of the first, true deduction that of the second.

## II.—*The Requirements of the Natural Method: Certainty, Universality.*

Intuition and Deduction are thus the two fundamental processes of natural logic, 'the simplest and most primitive of all,' processes whose mere operation, when pure and unbiassed, is in itself a guarantee of true and therefore of scientific thinking, and moreover so universal in their application, bound up as they are with the very action of intelligence, that their proper province can be nothing less than the whole of knowledge. Reason, in a word, claims as its essential birthright *certainty* and *universality*. It is the natural light of reason which in last resort constitutes the standard of truth, and by its singleness of nature guarantees the unity of all knowing, the universality of scientific method, and the all-inclusiveness of the knowledge it is qualified to know. Descartes is never weary of insisting on the infallibility of this natural light of reason. The art of Logic is to him the art of thinking according to nature, *i.e.*, according to a method which is immanent in the very

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structure of thought itself. When Reason realises clearly and distinctly that its verdict is a mere utterance of its own essential nature, that verdict is *ipso facto* true. The clearness and distinctness therefore, which constitute Descartes' famous criterion of truth, are but the marks which show that Reason is speaking in the light and in the authority of its own nature. We think truly when we think 'naturally,' and a thing is true when that purely intellectual instinct, the *intuitus mentis*,—*la lumière naturelle*,—assures us that it is so.[1] That this criterion should be universally applicable follows at once from its being thus identified with the standard of natural thinking: for having been completely defined without any reference to the objects to be tested by its light, its testing capacity cannot be made to depend on the nature of the matter that is tested. Truth is one in its own independent nature, and the criterion of truth is therefore one and universal, dominating the whole sphere of knowledge, sifting everywhere the false from the true, that which can be clearly and distinctly laid hold of, with an evidence that is purely intellectual, from that which cannot be so conceived.

Of the inner nature of that which secures to us this certainty and universality Descartes has nothing to say. Just as it is impossible for any method to teach us how the primitive operations of intuition and deduction are produced, since a consciousness of these processes is prior to the very conception of method, so no logical definition gives us any helpful answer to the question 'What is truth?' 'As for me,' says Descartes, in a letter written to M. Mersenne,[2] 'I have never had any doubt as to what Truth is, conceiving it as a notion so transcendentally clear that it is quite impossible to be ignorant of it. There are indeed many ways of testing a balance before using it; but we should find none for teaching us what truth is, were it not naturally known to us.'

### III.—*The Natural Method: A Few Rules Rigorously Carried Out.*

The certainty and universal applicability of the fundamental processes of Reason determine *a priori* the character of the method by which these processes are regulated. Descartes' method is such that it requires certainty at each step, and must be applicable to any matter whatsoever. It is the one way in which the mind works when it is acquir-

[1] *Cf.* ed. V. C., viii., 168.
[2] 16th Oct., 1639.—V. C., viii., 168.

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ing science. 'By method,' says Descartes,[1] 'I understand a set of sure and easy rules which, rigorously followed out by any one, will prevent his ever putting false for true, and ensure his attaining, through a growth of scientific insight that is gradual and persistent, and involves no waste of mental enterprise, to the true knowledge of all that does not transcend his powers.'

Descartes' identification of method with a set of sure and easy rules is characteristic of his whole attitude towards the question of method. He felt that for the furtherance of Science, it was far more important to apply a few main rules rigorously and methodically than to develop a merely systematic Theory of method. He had no more love for logic, *qua* logic, than he had for the abstract developments of pure mathematics.[2] Method without results was as unprofitable, in his opinion, as results without method. 'It is far better,' he says,[3] 'never to think of finding out the truth on any point than to do so unmethodically,' but, at the same time, he strenuously opposes any sort of method which is formal or useless. In Reg. X., §§ 64, 65, we have Descartes' views on the value of that form of reasoning which professes to 'reach sure conclusions by virtue of the form alone'. It 'contributes in no way,' he says, 'to the discovery of truth'; it is 'absolutely useless to such as wish to seek out the truth of things,' and should 'be handed over from Philosophy to Rhetoric'. Concerning the usefulness of all real science, Descartes is most explicit. His desire to make methodical study work out useful results is visible, not only in the continuous references he makes to the useful character of this or that discovery or point of view,[4] but in the evidences he gives us of his own personal inclinations. He is repeatedly 'weary of mathematics,'[5] and would hold his rules very cheap, if all they could do were to solve the unprofitable problems with which logicians or geometers have been wont to beguile their leisure.[6] On the other hand he is so enthusiastic over medicine that he is able, in his *Discours*,[7] to assert without any hesitation that he intends to devote all the rest of his life to a study which promises to be of such use to his fellow-creatures.

[1] Reg. IV., § 17.
[2] *Cf.* V. C., vi., 103; viii., 97, 193; and *cf.* Reg. IV., § 20.
[3] Reg. IV., § 17.
[4] *Cf.* Reg. IV., § 19, and *passim.*
[5] *Cf.* V. C., vi., 103; viii., 97.
[6] Reg. IV., § 20.
[7] Part vi., § 2.

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The set of rules, then, which in Descartes' eyes was of more worth than any continuous theory of method, owed its charm to the fact of its being more easily remembered and more readily practised and applied when thus condensed into the briefest possible compass. Writing to one of his friends with regard to the *Discours*, he says that one has only to glance at his treatment of method to see that he holds it to be a question of practice rather than of theory, and that the worth of his method must be tested by the results of his attempts to apply it in his *Geometry, Dioptrics and Meteors*. In perfect consistency with this conception of method, we should note the great stress which Descartes lays on its rigorous observance. If the whole of logic is to be condensed into four short rules, it is only on condition of forming 'a firm, unswerving resolution to carry them out faithfully on every occasion'.[1] It was indeed to the exact observance of these few precepts chosen by himself, as we read in the same context a little farther on, that Descartes attributed his great success in the solution of mathematical problems. These four rules, within which Descartes, in 1636, summed up his theory of practical method, were stated by him in the following form :—

'I. Never to admit the truth of anything which I do not clearly recognise to be true; *i.e.*, to carefully avoid undue haste, to put away all preconceived ideas and to include in my judgments nothing which does not present itself so clearly and so distinctly to my mind that I have no reason whatsoever for doubting it.

'II. To split up each difficulty I examine into as many different parts as its nature allows and its proper solution requires.

'III. To be orderly in my thinking, beginning with those objects which are simplest and easiest known, and working my way up gradually, step by step, to a knowledge of what is most complex; bringing in an order of my own making where there is no natural order prescribed by the nature of the objects themselves.

'IV. Lastly, to make everywhere enumerations so exhaustive, and revisions so general in kind, that I may be sure of having omitted nothing.'

These four rules constitute, on the whole, a fairly satis-

[1] *Discours*, part ii., § 6.

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factory epitome of the method of the Regulae. The same points are insisted on in each case and the spirit of the two methods is essentially the same. In discussing Descartes' method, we cannot, therefore, do better than adopt these well-known rules as the basis of our inquiry, the more so indeed as, despite their familiarity, they have often been imperfectly understood. Any points of divergence between these rules and the Regulae which are of real significance will be noticed in the course of the investigation.

(*To be continued.*)

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# II.—A CONTRIBUTION TOWARDS AN IMPROVEMENT IN PSYCHOLOGICAL METHOD.[1] (II.)

By W. McDougall.

PART II.

## On the Conditions of Occurrence of Consciousness.

If the preceding review of the statements and opinions of psychologists as to the relation of neurosis to psychosis be at all a fair one, it must be agreed that this question, which is of so fundamental importance for their science, is in a most unsatisfactory condition.

It seems to me that the time has come to inquire, What are the conditions of occurrence of consciousness in terms of neural process? What are its immediate physiological correlates, antecedents and sequences? In prosecuting this inquiry I shall endeavour to treat of consciousness objectively, as an 'existent,' as Shadworth Hodgson puts it; remembering that the function of science is to describe and classify sequences, not to explain what things are.

## Consciousness seems to be Determined by the Novelty of the Reactions between Mind and Environment.

A review of the data accepted by almost every thinker at the present time, indicates that there is a certain constancy and similarity in the conditions of occurrence of consciousness. In the first place, it occurs in conjunction with neural processes in the brains of men, and probably in the brains of, and possibly in the lower nervous centres of, other animals, and we have no evidence that it ever occurs independently of neural processes. Secondly, it occurs not with all neural processes. In the case of the simplest reflex processes, it is generally believed to be absent, while it commonly accompanies the more complex processes. But, as is proved by numerous well-known instances, it does not constantly accompany purposeful and complex processes. Thirdly,

[1] Read before the Aristotelian Society.

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there has been a general tendency to regard the cerebrum as the organ of consciousness, and to assume that consciousness accompanies all neural processes that occur in it, while denying it to all others.

Now while it is perhaps true that in man consciousness accompanies only the neural processes of the cerebrum, yet it is certainly not true that it accompanies all of these. The facts of epilepsy alone are enough to establish this. The common way of regarding these facts is to say: 'Oh! consciousness is in abeyance'. But the important fact is that there occur very intense neural processes in the cerebrum without consciousness. And, as I shall point out below, it must be admitted that there occur many normal neural processes in the cerebrum without accompanying consciousness, and many others which, though they form parts of total processes accompanied by consciousness, do not directly determine it.

Consciousness, then, varies with neither the complexity, nor the intensity, nor the purposefulness, nor the anatomical seat of the neural processes in conjunction with which it occurs. But, as is indicated in every text-book, there is one factor with which it does vary, perhaps not exactly and solely, but still constantly, and that is the novelty of the combination of neural processes concerned. It is a commonplace of the schools that with repetition of any action, the consciousness accompanying the neural processes that determine the motions of the body, becomes less and less intense, and in many cases is known to disappear altogether, when tested by our only direct test, the capacity of being remembered in self-consciousness. When dealing with simple actions resulting directly from sense stimuli this fact is sufficiently obvious and undeniable; so much so that it is admitted by almost all writers. The list of examples of this passage of conscious into automatic response is well known —the pianist, the knitter, the bicycle rider, the whistler, etc.

I will describe one particularly instructive instance, of a kind that has probably been experienced by most of us. I go to a new lodging and tell the servant to call me every morning at a certain time. On the first morning he calls me, and while he is knocking more or less loudly on the door, I waken up, and realising where I am and that the servant is knocking, I answer, 'Yes, all right!' and then I roll over and go to sleep again. On each of the following days we go through a similar process, but with this difference —on each succeeding day I waken up less completely; I do not, as on the first day, sit up and look round, and then,

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realising where I am, answer, 'Yes,' but I sleepily say, 'Yes, all right,' and at once fall asleep again. Very soon comes a time when I ask myself, 'Did he call me this morning?' and I can answer, 'Yes, he did'. But after that comes a time when I cannot by any effort remember any knocking or any answering, and yet, on asking my servant, he declares truthfully that he called me and that I answered as usual. And now, unless I make a great effort or my servant calls me more vigorously, this state of affairs continues; I answer every morning, 'Yes, all right,' but never waken, never remember the call or the answer; in fact, I answer without consciousness. This fact, the loss of the consciousness accompanying a series of neural processes on frequent repetition of that series, which in simple cases is so obviously constant, is generally lost sight of more or less when we are dealing with more complex processes of the brain. But many considerations tend to show that this correlation of consciousness with the novelty of the combination of neural processes, holds good for processes of every degree of complexity. In the first place we see that of the actions of which it is well known that they may become unconscious or automatic, many are exceedingly complex and must involve the activity of large areas of the cerebral cortex. Speech is such an action; so far as we know, when the cortical speech areas are destroyed, articulate speech of any kind is impossible, and they are always active in governing speech, and yet, as we have seen in the instance above, it may be perfectly and purposefully performed without consciousness.

Further, psychologists have come to recognise that in complex mental processes there are always, besides the object which is said to occupy the focus of consciousness, many factors of which we are so little conscious, that we have no reason for calling them conscious at all, except that they can be proved to play a large part in determining the course of the flow of thought. The greater part or the whole of what has been called the fringe of thought is of such factors, and Stout is undoubtedly right in declaring that the fringe is, in a sense, of greater importance than the central object. If we try to compare the neural processes that underlie the consciousness of the central object in the mind of a highly skilled billiard player, with those forming the fringe that guides all or most of his bodily movements, we must confess that the latter are probably far the more numerous and complex. Compare the perfectly adapted movements or rather innervations of the muscles of all his body and limbs, while his attention is fixed perhaps almost entirely on the leading



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ball, with the irregular movements and varied consciousness of the beginner. And it is the same with the practised thinker or mathematician; he is conscious of his premisses and conclusions, *i.e.*, the neural processes concerned in their representation in the mind, as words or images, are accompanied by consciousness, but with the vast number of processes that are concerned in the bringing together of remote yet appropriate factors, there is no consciousness. Much of this is now recognised by psychologists, and they are beginning to work out the science of unconscious processes, though they show a reluctance to explicitly state that the processes are unconscious.

Again, it is a commonplace that new scenes arouse a more vivid consciousness of their detail than well-known ones, unless through emotional associations many memories are called up by the latter. To travel is the specific remedy for a listless mind. To take a particular instance,—we may have been familiar with some room in our home from earliest childhood, we are 'at home' in it and restful, our actions are appropriately determined by the impressions made on our sense organs by its parts; we may sit in some peculiarly comfortable manner in each particular chair. Yet we may be quite unable to describe the room and its contents, to say how many pictures there are, and where they hang, or what kind of handle there is to the door. But let one picture be moved, and we shall at once notice it, become conscious of it, and we may even be surprised to see it, and may say: 'I never knew that picture was in this room'. Or let the door handle be a little altered in its working, and we shall fumble over it and say: 'What an extraordinarily stupid handle, I never noticed before what a bad one it is!' Or the change may be in ourselves, our point of view may have been altered by a phrase or a glance, and we become conscious for the first time of the bare places in the carpet, of the want of harmony in some colour, of the ugly shape of a chair. It is again the novelty of the combinations of neural processes that seems to determine consciousness.

## Consciousness Constantly Accompanies the Acquirement of Experience.

A similar conclusion must be drawn if we take a general view of mind or brain and ask ourselves: What are the features that are most peculiar to it, that distinguish it most markedly from everything else? For the answer is obviously: Consciousness and a great capacity for experience. By

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experience I mean the being affected by the incidence of forces from outside, in such a way that, on the re-incidence of the force, the reaction of the subject to it is found to have been modified in a definite manner by the former incidence; widely speaking, in a manner that shows adaptation for the benefit of the organism that carries the brain. It is this capacity for experience that is the all-important and fundamental property of mind, that distinguishes it from all other things, from machines of all kinds, and that makes it improper to describe animals as automata in the sense in which Huxley uses the word. We may go farther, and say that these two things vary together, and where there is no consciousness there is no experience and conversely, and where there is consciousness there is experience and conversely, and I do not think that there are any facts that will make this statement untrue. In those familiar instances of actions becoming automatic through repetition we know how at first performance is accompanied by much consciousness, and results in much increased facility (*i.e.*, there is much experience), and how each succeeding repetition is accompanied by less consciousness and a less increase of facility (*i.e.*, less experience), until, when consciousness no longer occurs, a degree of facility is arrived at that does not increase with further repetition (*i.e.*, there is no experience). If the action is now clumsily performed, it will continue to be clumsily performed, unless through some new interest arising, attention is once more directed to the action, when consciousness of it and experience once more occur.

I do not know whether the above statement, as to the constant association of consciousness with experience, is generally received as true, or will be so received, and I will therefore quote some passages from an article by Prof. Bain (MIND, vol. iii.) that will lend the weight of his authority to the proposition. On p. 35 he writes: 'It is a recognised condition of retentiveness, that the things retained must have had the full occupation of our conscious moments for a longer or shorter time, and that the more intense the conscious flame, the more rapid the adhesive growth'; and again, 'But whether two movements originally disjoined could be in the first instance brought together out of consciousness is a different matter: there is nothing to lead us to suppose that this is in any way practicable. When we have to deal with impressions of the various senses, and with their aggregation into groups and trains, we must pronounce without scruple that such groupings require to begin in consciousness, and have their pace determined by the

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conscious intensity.' He proposes to accept evidence of retention, *i.e.*, of experience, in the sense in which I am using the word, as objective evidence of consciousness, and I think that we may well accept it as our only objective test of consciousness, unless facts should be found to make this impossible. Consciousness then goes together with experience and not without it. And if we try to express experience in terms of neural process we must, I think, say that it means the establishment of new relations among nerve cells and their processes, or using the word neuron as the name for each nerve cell and all its processes, we may say that it is the establishment of new connexions among neurons.

## Analysis of a Simple Case of the Acquirement of Experience.

Let us try to work out in terms of neural process a simple case of experience. A child or a savage sees a flame for the first time and puts out his hand to take hold of it; the hand is burnt and quickly withdrawn. On seeing a flame a second time he does not attempt to take hold of it, *i.e.*, in the first occurrence there was rapid experience, and there was also intense consciousness. Compare this with the case of the behaviour of a pithed frog. On sharply pinching its foot its leg will be drawn up towards the body, and in presence of a suitable arrangement it will come in contact with a hot surface, and will then be sharply withdrawn from it. On repeating the experiment, under similar conditions, the behaviour will be exactly the same, and so far as we know, it may be repeated indefinitely often, until exhaustion sets in. Here there seems to be no experience and no consciousness, though it is possible that both are present in a very low degree. What then is the difference between the two cases stated in terms of neural process? Let us compare the nervous events in the two cases in more detail. In the case of the pithed frog the nervous impulse started by the pinch to the foot travels by a simple reflex nervous arc through the spinal cord, and out to the retractor muscles of the leg. Then when the skin touches the hot surface, the new impulse travels by another and quite separate reflex arc to another set of leg muscles, and the leg is drawn in another direction. Each of these reflex arcs is an old-established path, and the only connexion between the two is the presence of the hot object; there is no possibility of establishment of new connexions between the neurons of the cord that form the two

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paths, *i.e.*, there is no possibility of experience, and there is no consciousness. Instead of the case of the savage and the flame, let us take, as a parallel but slightly more complicated case, an instance of the hot-spoon game, so well known to children. Let us suppose that I am a very patient person, and that I am sitting at breakfast talking with an interesting neighbour on my right, and having a festive youngster on my left. The boy on my left calls my name into my left ear, and my head turns towards him and brings my left cheek into contact with his hot teaspoon, whereupon my head is jerked away. Presently he calls my name again into my ear, and again my head begins to turn towards him, and my cheek comes in contact with the hot spoon once more, or my head is jerked away just in time to prevent it. On his third attempt my head probably makes but little movement towards him, and on frequent repetition of the attempt I become less and less conscious of his calling my name, and there is less movement of my head, until my attention is no longer distracted by the call, and my head makes no answering movement. Shall we say that in the first instance I became conscious of the voice, and therefore turned my head, and then, feeling the hot spoon, jerked away my head to avoid the heat, but that with frequent repetition of the stimulus of the voice it ceased to arouse my consciousness, and therefore I ceased to turn my head towards it? I believe that there are some psychologists who would offer some such statement as a description or explanation of the occurrences; but I have no hesitation in saying that such a description seems to me not only futile, but wholly wrong, and in offering instead the following account.

The voice at my ear sets up nervous impulses in the auditory nerve which, reaching the lower centres, namely, the nuclei of the nerve in the pons cerebri, and perhaps also the cerebellum, travel through an old-established reflex arc to the motor nerves of the muscles of the left side of the neck that turn my head to the left. This reflex is an old-established one, for it is present in most of the higher mammals. When my cheek comes in contact with the hot spoon, nervous impulses pass up to the nuclei of the fifth nerve, and thence, by a reflex path, to the motor nerves of the muscles that jerk my head away, the muscles of the right side of my neck. This also is probably an old-established reflex. If it were possible to pith me, *i.e.*, destroy the upper parts of my brain and leave the rest of my nervous system active, as is done in the case of the frog, there can, I think, be no doubt that the two movements of my head would occur in much the

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same way in response to the two stimuli, and that just as in the case of the frog, there would be no consciousness and no experience, but that my head would turn to the left, my cheek would get burnt, and my head jerked away indefinitely often, until exhaustion set in. If we represent the two reflex arcs that carry out the movements in the frog by figure 1, then this figure represents also the two reflex arcs that carry out the two movements in me, whether pithed or not pithed. Where, then, does consciousness come in, and what constitutes the experience that I acquire when in the normal state? We may represent the neural processes concerned by figure 2. We have, as in the case of the frog, the two reflex paths, E, EC, AMC, AM, and C, CC, RMC, RM. The impulses excited by the voice pass from E to EC, and

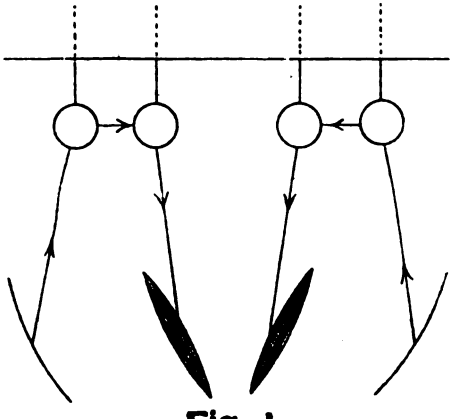

**Fig. 1**

thence along two paths, by one to AM, the muscles of the neck, and by the other to ECC, the upper auditory centres, probably some part of the temporo-sphenoidal cortex, where they excite consciousness of the voice at the same time as my head is turning to the left.

In just the same way the impulses set up by the hot spoon at C reach CC and pass thence by two paths, by the one to RM, the muscles that jerk away my head, and by the other to KCC, a higher sensory centre, probably in some part of the cerebral cortex, and there excite consciousness of the heat at the same time as, or perhaps even after, my head is jerked away. The experience must consist in an establishment of nervous connexions between the centres ECC and KCC through contiguity in time. We must assume that the excitement of ECC has led to excitement of a far-

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spreading system of nerve paths radiating out from ECC towards all parts, and that these remain for some time peculiarly excitable. Then when immediately afterwards KCC is excited, impulses radiate out from it along various paths, and some entering paths leading from ECC and still in a state of raised excitability pass with especial ease and force along these paths to ECC. And we must assume that thereby there is set up a path from KCC to ECC more open than the other paths leading from ECC, so that on the re-

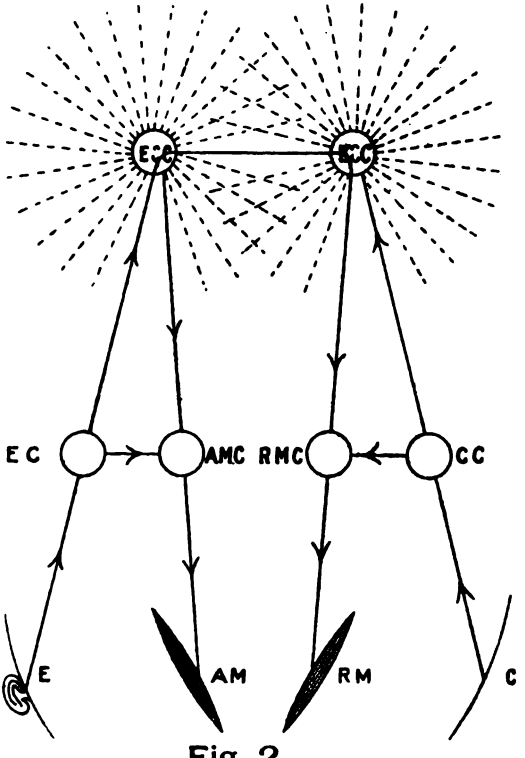


Fig. 2

currence of the stimulus to E and excitement of ECC the impulses pass on rapidly to KCC, and thence through the lower centres to the muscles RM. This new path is improved by repetition of the process, until the innervation of RM is rapid enough to counteract the innervation of AM. At the same time there is probably a process of inhibition [1]

[1] It has been shown by Prof. C. S. Sherrington that in certain cases when a set of muscles is caused to contract by stimulation of the corre-

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of the muscles AM set up, so that there is less powerful innervation of them. There is thus organised a new reflex path, and when it is well established, there is no further consciousness and no further experience. The energy of the stimulus is all drawn off into this newly organised channel, experience, involving conscious processes, has established a new connexion between the two reflexes E, EC, AM and C, CC, RM, and built up from them a new reflex path of a more complex character, one which we may call a reflex of the second degree. This new reflex path is now ready to be built up with other reflex paths by other experiences into still more complex paths, which may in turn become organised into reflexes of the third degree; these again may in time become reflexes of a fourth degree and so on. We are here dealing with the psychological individual, *i.e.*, assuming, as it seems allowable to do for convenience of description, that the development of mind takes place in one long-lived individual, representing many generations. In this individual there seems to be a continual organisation of new and more complex paths, through the combining, by means of new and higher neurons, of reflex paths already established. Is not this the type of all mental growth? This growth is rendered possible by a continual multiplication of neurons at the top of the neural system.

## General Scheme of the Mammalian Nervous System and its Development.

The nervous system of a mammal seems to consist of such superposed systems of reflex paths, together with a great mass of new neurons at the top of the system not yet or only partially organised into reflex paths. We may represent such a nervous system by figure 3. The paths of the lowest level represent the simple reflexes (in the narrower sense) of the spinal cord and bulb: these were the first to be established, and are the most fully organised; they are fixed and their excitement involves no consciousness. By the more numerous, more complex paths of the second level we may represent the more complex, less fully organised instinctive reactions. These, like those of the first level, were organised long ago in the psychological individual, and in the actual individual are congenital, and but little modifiable during

sponding cortical area, there is caused at the same time an inhibition of the antagonistic set of muscles. It seems probable that such inhibitions play a large part in balancing the actions of muscles and economising the expenditure of both nervous and muscular force. "Cataleptoid Reflexes in the Monkey," *Lancet*, 6th February, 1897.

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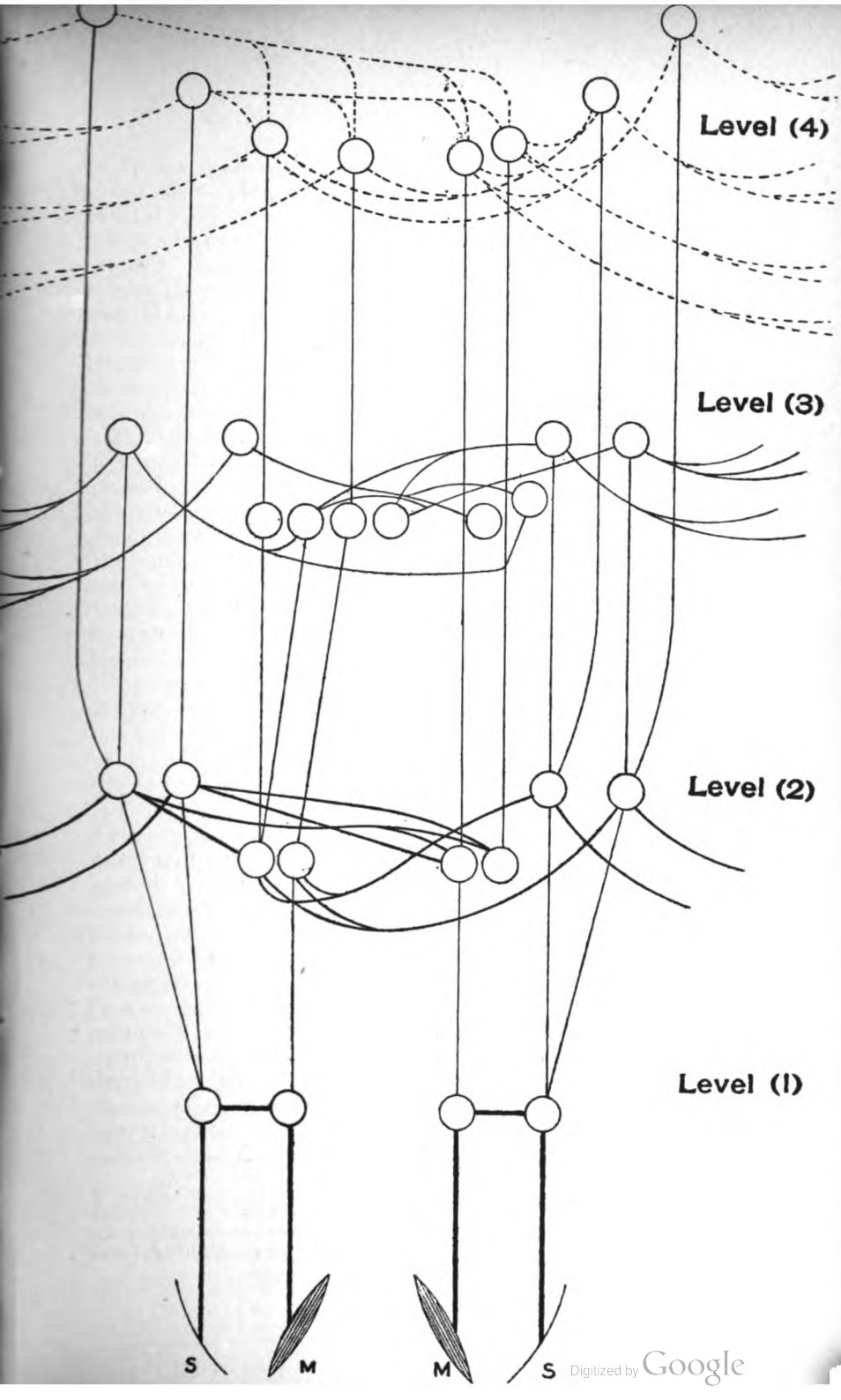

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life. These paths probably make up the greater part of the pons cerebri and the cerebellum. By the still more numerous paths of levels 3 and 4, we may represent all the mass of neurons constituting the greater part or whole of the cerebral cortex. These are not yet organised at the time of birth, and though there is an inherited tendency for organisation in certain groups, yet their organisation is very largely modifiable, and hence largely determined, by the impressions made upon the sense organs during the life of the individual. By the paths of level 3, we may represent the paths more or less organised out of this mass of material after birth, forming the anatomical basis of habits, and by the dotted lines of level 4, the neurons not yet organised into paths, and so affording possibilities of the establishment of new connexions among the paths of the lower levels, *i.e.*, possibilities of new reactions and the acquirement of new habits. During the life of the individual, neurons of level 4 become continually incorporated into level 3, as habits become formed.

This organisation of neurons of level 4 into complex paths, by which the organised systems of lower levels are brought into still more complex groupings than before, constitutes experience and is accompanied by consciousness. The young animal has great capacity for experience, and accumulates experience rapidly at first, until in middle life many habits are formed, and experience is less rapid. And in the old animal habits rule every movement, and there is very little experience. Is it not a fair assumption that the consciousness of the young animal is far more varied and intense than that of an old one? Watch the young shepherd's dog while he is being trained, see how intensely excited he is, how he tries to do many things at once, how every little thing diverts his attention to itself; and compare him with the old dog that does his work well and steadily, without hesitation and without excitement, without being led away from it for a moment by other objects.

I shall attempt in a later part of this essay to define more accurately the relation of consciousness to the process of organisation of paths that constitutes experience, and will now point out how the results of the study of mutilated nervous systems bear out the above scheme of a mammalian nervous system and its development.

It is well known that the spinal cord of the frog, when cut off from the brain, is capable of carrying out purposive movements of some slight complexity, but that it is capable of but very little experience. It is however stated on good authority that it is capable of experience in a very small degree, and it

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is generally believed that no consciousness accompanies its activity. If this were true, we should have here an exception to the instances by which I am endeavouring to establish an induction. G. H. Lewes has written a large volume[1] in which he is chiefly concerned to prove that there may be some kind of consciousness accompanying the activity of the frog's spinal cord. I must confess that he seems to me to have merely confused the issue by juggling with the words sentience, consentience, sensibility and consciousness. Without attempting to follow him in his conclusions, I would point out that the only ground for denying consciousness to the spinal cord of the frog is, that the human cord when cut off from the brain, cannot be shown to produce consciousness. Now even if this were known to be true, which at present is not the case, we should still expect, on *a priori* grounds, that the frog's cord may be capable of a low form of consciousness. For it may be reasonably supposed to be less completely organised, less unalterably mapped out into definite paths. For regarding the frog as representing a low stage of the development of the psychological individual, it is clear that the reactions of its spinal cord have been less frequently repeated, than those of the cord of an animal representing a late stage of development. And if, as has been stated, it is at all capable of experience, we must suppose that it still contains neurons of the levels 3 and 4 in our figure; while in the cord of man all those limited possibilities of new connexions of experience, afforded by these unorganised neurons, may be supposed to have been long ago abolished by the incorporation and organisation of these neurons into new and more complex paths, both of reflex and instinctive action and of conduction to and from the higher parts of the nervous system.

In the higher mammals this complete organisation of the neurons, and consequent incapacity for experience and consciousness, seems to be true, not only of the cord but of the lower parts of the brain also, the bulb and pons and cerebellum. This is shown by many cases of ablation of the cerebral hemispheres in birds and mammals, but especially instructive is the case of two dogs in which Prof. Goltz of Strasbourg successfully removed practically the whole of the cerebral hemispheres. These dogs could run about, avoid obstacles by sight, eat, drink, and show resentment if hurt. But all their actions were instinctive and constant reactions to accustomed stimuli to their sense organs.

[1] *Physical Basis of Mind.*

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Of them it was true to say, as Huxley says of all animals, that they were automata. They had no minds, no capacity for experience, or but very little, and I think it may be said with very great probability, no, or very little, consciousness. They simply reacted by the old-established instinctive paths of the lower brain centres. Three of the observations made on them are particularly interesting, as showing the absence of capacity for experience. They never learnt to know that they were about to be fed, although they were always fed by the same man at the same hour. When placed in a box with low sides and no cover, they never learnt to jump out of it, as a normal dog does in a moment. When given a piece of meat smeared over with quinine, they invariably rejected it, while a normal dog hesitated on tasting the quinine, and then swallowed the meat. The one reacted instinctively by old and well-established nerve paths; the experience of the race (or natural selection) had determined that bitter substances, among which are many violent poisons, must be rejected. The other had learnt to take whatever was given it by its master, and on stimulation of the nerves of taste by the quinine, a struggle ensued between the activity of the nerve paths tending to rejection, and that of the much more complex paths in the cerebral cortex, whose predominance leads to the swallowing of the quinine. The latter paths must have subserved the mental images of the master and self, and the bad-tasting food, a combination hitherto unknown, *i.e.*, there was a new combination of nerve paths and in all probability there was acute consciousness.

There can be little doubt that if the quinine be given constantly with the meat, the dog will come to notice it less and less, and very soon will swallow it in much the same way as it does other food, with very much less consciousness than at first. Just as in the case of the victim of the spoon game, there has been a modification of one established reaction, through its nerve paths having been brought into relation with those of an antagonistic reaction by means of a newly organised tract,—there has been made a new, more complex system of paths, the physiological basis of a habit, by the establishment of relations between the paths of the two reactions. But this experience was impossible to the dogs without cerebral hemispheres, for the neurons of levels 3 and 4 had been wholly or mostly removed with the hemispheres, their nervous systems had been cut across between levels 2 and 3.

The above scheme of a mammalian nervous system is, of course, rough and sketchy; but it must, I think, be accepted

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as essentially true in its general outline. How far it will be accepted, or already has been adopted by psychologists or neurologists, I do not know. It is certainly widely different from that proposed by Spencer, as may be seen in the passages of his writings already quoted. More recently, a distinguished neurologist, Dr. Augustus Waller,[1] has definitely formulated two schemes of the type-reactions of the nervous system. Since these are fundamentally opposed to the scheme sketched above, they must here be examined. By the one scheme he illustrates, with the help of a diagram, what he supposes to be the nervous change underlying the passage of conscious into automatic action. The diagram is copied in figure 4. Of this he writes: 'Given three centres

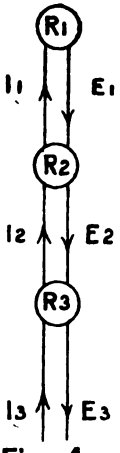


Fig. 4.

ranking I, II, III, and indicating impression, expression and alterations of resistance or tension by appropriate letters and numerals. An impression $I_3$ enters 111, produces an alteration $R_3$ and liberates $E_3$. Altered $R_3$ constitutes impression $I_2$, $I_2$ enters 11, produces an alteration $R_2$ and liberates $E_2$. Altered $R_2$ constitutes impression $I_1$, $I_1$ enters 1, alters R, and liberates $E_1$. A second identical impression $I_3$ will meet with less resistance in 111, it will produce a smaller change $R_3$ and conceivably a larger liberation $E_3$; a smaller change $R_3$ will constitute a smaller impression $I_2$, therefore a smaller change $R_2$, therefore a smaller impression $I_1$, etc. As the consequence of repeated identical impressions we thus have: diminished resistance, the diminution being greatest in 111, less in 11, least in 1; diminished impression, the

[1] *Brain*, vol. xv.

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diminution of $I_2$ being greater than that of $I_1$ increased expression, the increase being greatest of $E_3$, less of $E_2$, least of $E_1$, or otherwise.' If I am capable of understanding Dr. Waller's extremely abbreviated phraseology, he means by this scheme to represent how an action, at first conscious, reaches the higher centres 1 and 11, and how with repetition it loses consciousness, because it no longer involves 1 and 11, or involves them in a less degree, and becomes a reflex action because its path is now through the lower centres only. A similar conception of the process by which a conscious action becomes automatic or reflex, is expressed by Spencer (vol. i., p. 106). But this scheme is directly opposed in every way to the one that I have put forward, and I do not see how it can be accepted, even if mine be not the true one. For it logically implies a series of absurdities.

Firstly, it does away with all meaning, all *raison d'être* of the higher parts of the brain. For if the nervous impulses causing the reaction pass, in the first instance, through the reflex arc, by which finally they are wholly carried, what purpose can be served by the higher centres to which a part of the energy of the impulse is supposed to reach at first? The scheme would seem to reduce not only consciousness, but the whole of the cerebral hemispheres and their activities to the level of mere epiphenomena, or at least of organs whose sole function is the production of an epiphenomenal consciousness. And if we then seek a *raison d'être* for the cerebrum, we have to invoke once more the action of a malign god. A further implication is, that if a man should live long enough, his higher nervous centres, his cerebrum, would pass out of use altogether and all his actions would be carried out by reflex paths in the lower parts of the brain and spinal cord. The consideration of the limited size and complexity of these lower centres is enough to show the falsity of the conception, apart from the abundantly established fact that these centres are congenitally mapped out into fixed paths, almost incapable of alteration. My scheme, on the other hand, implies that if a man should live long enough, his cerebrum would become completely mapped out into complex systems of nerve paths, the nervous bases of habits, just as we may suppose the reflex and instinctive paths of the cord and lower brain centres to have been mapped out many generations ago, and that when this state was arrived at, experience and consciousness would no longer be possible. An approach towards this state of things may be observed in many old people, in whom habits of thought and action rule the whole of conduct, and consciousness seems to be of low intensity.

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Waller gives a second diagram (copied in figure 5) to illustrate the means by which the many actions of the lower centres are made subservient to the total mind. The diagram explains itself. It clearly implies that the higher in the nervous system the impulses reach, the fewer the number of cells they pass through in each level, so that in the higher levels the same cells or centres are affected by impulses from very different lower centres. It is suggested that we have here a key to the understanding of the unity of consciousness. It seems to be implied that if we can show that all conscious impulses concern one small group of cells, then we shall have explained the unity of consciousness. A similar tendency is manifested by many writers. It is under the influence of

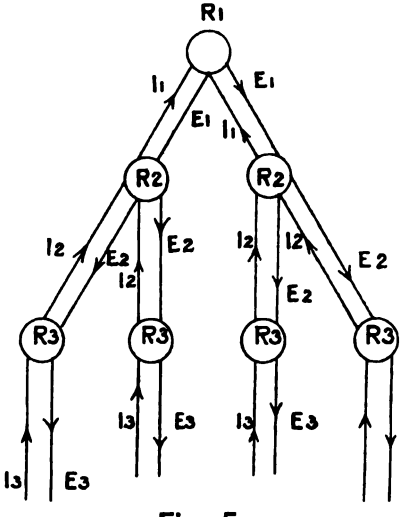


Fig. 5.

this idea that the older psychologists sought the seat of the soul in the pineal gland, and other strange places, whose one desideratum was smallness of size. It seems to be by the same influence that Spencer is driven to explain co-ordination by passage of impulses through one ganglion, and to assign the medulla oblongata as the seat of consciousness (see passages quoted above), and perhaps also that Wundt has come to assign the frontal cortex as the seat of 'apperception'. Do not such attempts imply a baseless materialism? Do they not involve the application to consciousness of our space form of intuition, acquired by the psychological individual by many experiences of external objects? Should we make any approach towards under-

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standing the unity of consciousness, if we could show that all neural processes, involving consciousness, affect one particular nerve cell, or even pass through one point in that cell?

We may trace the influence of this idea again in the analogy suggested by Dr. Mercier, between the working of the nervous system and the working of an army. It is implied that just as the parts of the army are co-ordinated by a system of centralisation, the individuals of each rank being subordinated to an individual of higher rank, and so all ultimately to the commander-in-chief, so there is in the nervous system something that represents the commander-in-chief, on which the unity of the mind depends. This conception is directly opposed to the scheme of the nervous system that I have formulated above, and seems to me to be fundamentally wrong. I think that we may find a very much truer analogy in the administration of the British Empire. We may compare the government-agents and consuls in all parts of the empire with the reflex centres of the spinal cord and bulb. Each such agency receives information continually from its own small part of the empire; the greater part of this information, all the commonly recurring details, the agency deals with by its routine system without referring it to any higher authority, *i.e.*, the agencies react by well-organised paths. The government offices in Whitehall we may compare to the systems of level 2 in our scheme; they, too, react by routine systems on the information passed on to them by the lower agencies; but their reactions are more complex and less unalterably fixed; they are comparable to the instinctive reactions of the lower parts of the brain, and in carrying out their determinations they make use of the lower agencies, just as the instinctive centres affect movements through the mediation of lower centres. These offices of the second level give in both cases a certain co-ordination to the activities of the agencies of the lowest level which, except through them, are entirely separate from, and without action upon, one another. But the offices of the second level are also largely independent of, and without action upon, one another, although they give effect to their determinations by means of the same lower agencies. Matters of unusual importance and difficulty are passed on by these offices to be dealt with by a still higher authority, namely, the resultant of the interaction of the opinions and wishes of all the capable people of the country. The latter represent the neurons of the levels 3 and 4. Many of them are organised into groups and political parties, which react in

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a fairly constant habitual manner on all information of a kind that is not quite unfamiliar; they represent the neurons of level 3, organised into paths of habitual reaction. In matters entirely novel, or when there is conflict between the systems of habitual reaction, there is a determining influence exerted by those individuals, chiefly the younger ones, whose opinions are not fixed, who belong to no party organisation. It is their presence and the continual replenishment of them, by the growing up of new individuals, that renders possible the striking out of new lines of policy, and reforms of every kind. They represent the unorganised neurons of level 4, which render possible new reactions to new and unusual stimuli. In either case, whatever unity there is in the whole system results from the indefinitely great possibility of interaction among these unorganised elements. By the conflict of their innumerable shades of tendency, a policy of some kind becomes struck out, and if it falls naturally along the lines of habitual reaction, it is readily carried into effect, but not otherwise;—habits may be too strong for reason, and the necessities of party too great to allow new policies to be put into effect. This analogy might be instructively developed at much greater length. It might, for example, be pointed out that there are still some who hold that the sovereign is the supreme head and centre of all power, that all parties and government offices and agencies do but give effect to her commands, and that on her depends the unity of the whole system; while the more modern view is that she is but the symbol of that power, and that unity, which expresses itself as an elaborate co-ordination among all the active parts of the system. If we seek for an analogy for consciousness in the administration of the Empire, we find one in the discussion that goes on among the individuals of level 3, and especially of level 4, when any new line of policy is being struck out. As soon as the policy is decided upon and effect given to it through instructions to the lower offices, the policy is very soon carried out in a routine manner, and all discussion ceases; the action becomes automatic.

There is a class of case that seems at first sight to consist of exceptions to the scheme of organisation of neural processes described above. Examples of this class, much quoted by psychologists, are those of the sleeping mother and the crying babe, the sleeping nurse and the restless patient, etc. A particularly good one, described by Lewes, is that of a sleeping waiter who reacted to the call 'Waiter,' but to none other, as though his consciousness were pecu-



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liarly easily affected by this often repeated stimulus, while it remained unaffected by novel and less familiar stimuli. I would suggest the following account as the most probable explanation of this apparent exception. The habitual reaction of the man to the call 'Waiter' is to start up, saying, 'Yessir,' and go towards the caller. When the words Johnson, Smith, etc., are called, they may feebly affect consciousness, mingling with his dreams, but they do not excite clear self-consciousness, or lead to bodily movements. But when the word 'Waiter' comes, it excites impulses in the auditory nerve that pass by well-organised paths to the muscles that lead to his starting up and saying, 'Yessir'. It may well be that this occurs without affection of consciousness; but the bodily movements lead to a fresh influx of many afferent impulses from the peripheral nerves that waken the man and arouse consciousness. He then becomes self-conscious, and finding himself on his feet assumes that he was called, and comes up saying, 'Did you call, sir?'

That this account is not improbable, each one of us can testify from his own experience of how a gentle stimulus, to which we are well accustomed to react, may bring us still sleeping to our feet, although a very much more violent stimulus, such as the noise of a thunderstorm, may merely affect consciousness by mingling in a fantastic manner with our dreams.

*(To be concluded.)*

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## III.—FREEDOM.[1]

By G. E. Moore.

The present paper is selected from a much longer essay on Kant's notion of Freedom, which I hope in future to rearrange and enlarge into a treatise on the whole of his Ethical Philosophy. This fact may serve to account in part for any difficulties of transition or apparent omissions of important topics, which may occur in it. If, after allowance for this, it should still seem too obscure or ill-arranged, I can only apologise. My object in the paper is to emphasise and defend, against such other views as seem to me the most important, certain points in Kant's doctrine in which I believe him to be right; and to criticise others in which I believe him to be wrong. It is not my main object to expound Kant, but to arrive at the truth on the subjects which he discusses. I have chosen to deal with him at such length mainly because I think that reference to the views of the philosopher, with whom you are most in agreement, is often the clearest way of explaining your own view to an esoteric audience; but partly, also, because I think he has been much misunderstood.

The paper falls roughly into three divisions. In the first I emphasise Kant's adherence to Determinism, as that doctrine is usually understood, and state briefly the nature of that Freedom which he also affirms as not inconsistent with such Determinism (pp. 179-185). In the second I attempt to defend and explain Kant's Determinism and to dispose of the theory of 'Liberty of Indifference' (pp. 185-194). In the last I discuss what seem to me the main difficulties in Kant's doctrine of Freedom, and attempt to convict him of inconsistency, and to disprove his position on those points in which he seems to approach nearest to maintaining 'Liberty of Indifference' (pp. 194-204).

I.—In beginning a discussion of Kant's notion of 'Freedom,' which he himself considers to be essentially connected with his Ethical system, it seems most important to emphasise

[1] Read before the Aristotelian Society, 15*th November*, 1897.

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the fact that, so far as his express statements are concerned, he accepts unconditionally the view of Determinism and rejects that of Freedom, in the only sense in which the two have been generally discussed by English thinkers. In ordinary controversies on the subject, no such absolute distinction is drawn between two kinds of 'causality,' two kinds of 'determination' ('Bestimmung'—the sense which is implied in 'Determinism'), two kinds of 'possibility,' or, finally, an 'intelligible' and an 'empirical' 'character,' as is drawn by Kant. Professor Sidgwick, indeed, puts the question in such a form that Kant's answer would probably have to be on the Libertarian side; but this result seems only to be obtained at the cost of the above-mentioned ambiguity. 'Is the self,' he says,[1] 'to which I refer my deliberate volitions a self of strictly determinate moral qualities, a definite character partly inherited, partly formed by my past actions and feelings, and by any physical influences that it may have unconsciously received; so that my voluntary action, for good or for evil, is at any moment completely caused by the determinate qualities of this character, together with my circumstances, or the external influences acting on me at the moment—including under this latter term my present bodily conditions? or is there always a possibility of my choosing to act in the manner that I now judge to be reasonable and right, whatever my previous actions and experiences may have been?'

Now to the first half of the first alternative, 'Is the self to which I refer my deliberate volitions a definite character,' etc.? Kant would be compelled to give what Professor Sidgwick considers to be the Libertarian answer of 'No,' because there seems to be implied in it the alternative of what he would call an 'intelligible character'; though even here he would be in some doubt, because it seems implied that the 'intelligible character' cannot be 'of strictly determinate moral qualities' or 'definite'. And with this presumption that Professor Sidgwick accepted his distinction, he would also probably answer 'No' to the second half, 'Is my voluntary action . . . at any moment completely caused by the determinate qualities of this character?' although, had that question come by itself, his answer would probably have been 'Yes,' since the sequel shows that when Professor Sidgwick says 'completely caused' he is only thinking of what Kant calls 'natural causality' (Naturcausalität). So, too, in answer to the second question, he

[1] *Methods*, p. 61 (5th edition).

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would only say 'Yes' on the presumption that Professor Sidgwick might mean by 'possibility,' intelligible, as well as empirical, possibility. But when Professor Sidgwick goes on to exemplify the deterministic view by reference to the principle of causality as employed in the Natural Sciences; when he says (p. 62) 'that the substantial dispute relates to the completeness of the causal dependence of the volition upon the state of things at the preceding instant,' there could no longer be any doubt that only that causality was meant of which Kant had been at such pains to prove the universal validity in the *Critique of Pure Reason;* and only some reason for surprise that reference should have been made to the possibility of a self with any other than a psychological character. Professor Clifford[1] gives a statement of the doctrine of Free Will, as commonly understood, which seems so clear as to be worth quoting: 'Whenever a man exercises his will, and makes a voluntary choice of one out of various possible courses, an event occurs, whose relation to contiguous events cannot be included in a general statement applicable to all similar cases. There is something wholly capricious and arbitrary, belonging to that moment only; and *we have no right to conclude that if circumstances were exactly repeated, and the man himself absolutely unaltered, he would choose the same course.*' Now this doctrine Kant would absolutely condemn. In fact, if Determinism only means that all men's actions conform to the laws of nature, and so, with the progress of psychology, could ultimately be predicted as certainly as the motions of the planets (and this is what Professor Sidgwick seems obviously to mean, and what is usually meant by it), Kant would have no hesitation in calling himself a Determinist. 'All actions of man in appearance,' says he, 'are determined (bestimmt) by his empirical character and the other contributory causes according to the order of nature, and if we could investigate all Appearances of his choice (Willkühr) to the bottom, there would be *no single human action, which we could not foretell with certainty*,[2] and recognise as following necessarily from its preceding conditions.'[3]

[1] Essay on 'Right and Wrong' in *Lectures and Essays* (1886), p. 318.

[2] It will be seen (p. 187) that I myself think it necessary slightly to modify this statement.

[3] R. V., p. 880, Hartenstein, ed. 1867-8. Throughout this paper R. V. stands for 'Reinen Vernunft,' P. V. for 'Praktischen Vernunft,' G. for 'Grundlegung zur Metaphysik der Sitten,' and M. for 'Metaphysik der Sitten'.

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Freedom, according to him, is absolutely impossible, if reality is ascribed to events in space and time. 'Since the thorough-going connexion of all Appearances in a context of Nature is a law that admits of no exception, this must necessarily upset all Freedom, if one were determined to cling obstinately to the Reality of Appearances. Hence also those, who in this latter respect follow the common opinion, have never been able to succeed in uniting Nature and Freedom with one another.'[1] Now the dispute between Libertarians and Determinists is undoubtedly conducted in general by those who do 'follow the common opinion' of ascribing reality to what Kant calls Appearances, *i.e.*, matter as treated in Physics and mind as treated in Psychology. In so far as Determinism is regarded as bringing the phenomena of Will into harmony with the results established by experimental investigation of Nature, it can only be a doctrine concerned with what Kant calls Appearances, and as such the above quotations seem to prove his unqualified adherence to it.

It would, in fact, appear absurd to the ordinary champion of Free Will, to declare that 'actions . . . which never have happened and perhaps will not happen'[2] are yet 'necessary'; and yet it is only on this basis that Kant is prepared to defend Free Will. If this be absurd, there is no choice but Determinism. Kant, in fact, uses 'necessity' here in a totally different sense from that in which common sense usually understands it. "'Ought' expresses a kind of necessity and connexion with reasons, which is found nowhere else in the whole of Nature.[3] . . . It is impossible that anything else ought to happen in Nature, than what in all these temporal relations actually is; indeed 'ought,' if we only look at the course of Nature, has absolutely no meaning." If you declare a future action to be 'necessary' the ordinary man would suppose you must mean 'it will happen'—that you are predicting something according to the Laws of Nature; if you do mean that 'perhaps it won't happen,' he would say that you are using terms inaccurately; you ought to have said it was only probable or possible. But meanwhile it is sufficient to point out that Kant does say this absurd thing; and that from this second meaning of 'necessity' there follows a second meaning of possibility also. Since that which according to the Laws of Nature is only possible can be called necessary, that which according to the Laws of Nature is absolutely impossible may, from Kant's point of view, be regarded as

[1] R. V., p. 373. [2] *Ibid.*, p. 380. [3] *Ibid.*, p. 379.

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'possible'.[1] It is only on this supposition of the possibility of the impossible, that Kant could have answered 'Yes' to Professor Sidgwick's second question.

What then, if Kant is a Determinist, does he mean by that Freedom, the reality of which he asserts? The answer to this question is, I think, to be found in his discussion of Transcendental Freedom, as an Idea of Reason, in the *Critique of Pure Reason*. The result of this discussion seems to me to be that Transcendental Freedom is the relation in which the world as it really is stands to events as we know them. It is the relation of Reality to Appearance. This relation necessarily appears to us as the logical relation of reason to consequent. The reason is free cause of its consequence. But though the relation is of this kind, and Transcendental Freedom is by this aspect of its nature absolutely distinguished from empirical causality and from human volition, as it appears in psychology, which is merely one form of such causality; nevertheless it differs from the logical relation of reason and consequent, in that neither reason nor consequent is here an abstract notion, but must be considered as having existence. A mere logical reason can never, as such, be considered as actual. If we seek for an actual existence as the ground of another, we get a mere cause. But that which has Transcendental Freedom is not a mere cause because it is no part of the temporal series of events; and it is not a mere logical reason because it has all the self-subsistence which appears to belong to the given temporal series.

This 'free causality,' therefore, is not causality in the ordinary sense; and there may well seem a good case for the contention that it is not free either, on the ground that freedom has an essential reference to human volition. Kant's conclusion at the end of the *Critique of Pure Reason* should have been that Transcendental Freedom was not merely possible but actual. But this independence of the proof of 'Freedom' from the Categorical Imperative, would seem to justify a suspicion that this 'Freedom' is not freedom, since its connexion with human action is by that

[1] The words in R. V., p. 379: "Now the action must undoubtedly be *possible* under natural conditions, if it is conformed to the 'ought,'" must be understood to mean that any *actual* action, which was in accordance with 'ought,' must also have natural possibility, *i.e.*, have been capable of prediction according to natural laws: not that for any conceivable action to be moral, it must also be naturally possible. So in M. d. S., p. 18, it is obvious that the 'morally possible,' the 'permitted,' may be something which you cannot actually do.

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independence certainly lessened. And, indeed, it must be admitted that there is no longer any reason for connecting the 'Intelligible Character' with the psychological character which distinguishes one individual from another. The 'Intelligible Character' is the one sufficient reason of all phenomena, whether processes of inanimate nature, or human actions. It is not proved that it is individualised in a multiplicity of souls; and it is certain that in any case it is the same in each. Our doctrine will not enable us to decide between a Monadism and a Monism, but it shows that, if there be Monads, they will be identical in so far as each exemplifies the 'Intelligible Character'. The 'Intelligible Character' cannot be used to explain why one man is different from another, so that you could say A is so and so, because his 'Intelligible Character' is of this sort; and B is different because his 'Intelligible Character' is of that sort. All differences can only be explained by referring them to different causes. But the 'Intelligible Character' is the one reason of the whole world with all its differences, and so not more the reason of one part than of another.

Kant, however, does not admit that *every separate thing* may be regarded as a result of intelligible or free causality, just as every separate thing is a result of natural causality. All he claims in his discussion of Transcendental Freedom at the end of the *Critique of Pure Reason* is that 'among natural causes there may also be *some* which have a faculty that is only intelligible'.[1] And he goes on to explain that by these he means only mankind. 'In inanimate or merely animal nature we find no reason to suppose any faculty conditioned otherwise than through sense. But man, who knows the rest of nature only through senses, gets knowledge of himself also through mere apperception . . . and is to himself partly, we must admit, a phenomenon, but partly also, namely, in view of certain faculties, a merely intelligible object.'[2] Now, setting aside the statement that man knows himself through mere apperception—a kind of knowledge of which Kant has not elsewhere explained the possibility, and which seems here temporarily to take the place of the Categorical Imperative as affording a *ratio cognoscendi* for the applicability of freedom to him—it is plain that he here regards man as on an absolutely different level from other things in respect of freedom. Man has freedom and nothing else shares it in any degree. And throughout his ethical works this attitude is maintained. Free causality is attri-

[1] P. 378. [2] P. 379.

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buted to man alone among the objects of experience.[1] So that, whereas natural causality applies with absolute universality—to him as well as to all other objects, freedom appears as a sort of miraculous power, whose influence may be traced in some events, but not in others. In the *Critique of Judgment* he is led partly to correct this view and to see that, if Freedom is to be brought in to explain anything at all, it must be brought in to explain everything. But, meanwhile, his restricted view of freedom makes it easier for him to establish a connexion with the vulgar notion. In the vulgar notion, too, some actions are free and some are not; and though it would not be admitted, as for Kant is necessary, that those which were free, might also, in another aspect, be seen to be completely determined by natural causality, yet the mere fact that the application of freedom is so partial, and also its especial connexion with man, assimilate the view more to that of Kant, than is possible with that here advocated, according to which freedom is universal.

II.—In the vulgar notion of freedom the most universal characteristic seems to be the absence of external constraint whether exerted to impel or to prevent. Where the immediate cause of a motion or change seems to lie in the thing which moves or changes and not in anything outside it, there, in a sense at all events, freedom is predicable. But this is a notion which is obviously not limited to human actions. Many of the movements and changes of animals and plants have their proximate cause in the things themselves; and the same might probably be said of any body in so far as it moved in accordance with Newton's second Law of Motion. It is thus we seem to talk of 'free as air,' or of the wheels of a watch moving 'freely'.

But there is an obvious defect in this wide notion, in that the limits, whether spatial or temporal, of any group we may take for our unit or thing, are always more or less arbitrary. A watch may be moving freely when its spring is driving it; but the movement of any one of its wheels is not free, because the wheel is driven by the spring or by another wheel.[2] And, again, there seems no reason why we should single out the proximate or immediate cause for such pre-eminence, nor anything to determine how far back in the past a cause ceases to be proximate. It is difficulties of this sort which seem to have gradually tended to restrict the notion of freedom to man, because in man the notion of

[1] Though also it belongs to any other 'reasonable beings,' if such there be. Gr., p. 237.

[2] *Cf.* on this subject, P. V., p. 100 foll.

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self is far more striking than elsewhere and the distinction between the internally and externally caused, therefore, *prima facie* more satisfactory. The difference between himself and anything else whatever is more constantly forced on a man's notice and more practically important to him than any other difference, and it is therefore not unnatural that the notion of freedom, in the sense of self-caused action, whether or not it is originally derived from his own experience and transferred anthropomorphically to other things, should at all events be more widely applied and less easy to dispense with in his own case, and that of other beings like him, than elsewhere.

Now the vulgar doctrine of Free Will, as 'Liberty of Indifference,' seems to be in the main an attempt to raise this distinction between self and the world entirely above the level of an arbitrary distinction. It was seen that this could not be done, if the self were regarded as a part in the causal chain of events, since it must then be subject to the infinite divisibility inherent in time, and the ultimate causal unit remain as arbitrary as any unit of time. It was therefore maintained that man's soul was an agent undetermined by previous events in time; it was the absolutely simple unity of Rational Psychology, and, as such, distinguished from all natural objects, which were always both themselves divisible into parts and also incapable of certain discrimination from an ever wider whole. Such a notion of a finite uncaused cause inevitably follows from the attempt to distinguish within the world of experience cases of purely internal and purely external causation.

And there are good reasons why the human will should have been taken as the final instance of a cause which is not also an effect. The progress made in the analysis of mental processes has been very slight in comparison with that made in physical science, (1) because of their greater complexity, (2) because experiment in psychology must be either indirect or encumbered by the fact that the observed is also the observer, and (3) because subconsciousness must be taken into account. And the region of the incompletely known is the favourite abode of a metaphysical monstrosity. In plain language, where facts are not completely understood, some short-sighted metaphysical theory is generally introduced as affording an easy road past the difficulties which stand in the way of thorough investigation. And, secondly, apart from the general difficulty of establishing exhaustive causal laws, which applies in a less degree to physical science also, and prevents certain prediction even

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there, there seems to be a real reason, which from the nature of the case can never disappear, why human volition should produce the illusion of so-called Freedom. It is this, that in virtue of the deterministic hypothesis itself, the knowledge that a certain course of action was about to be pursued [1] must always exert some influence upon the course actually pursued, and so make the result different from what was foreseen after a consideration of all the other elements that would contribute to it. And even if the fact of this knowledge were taken into account in the calculation, and the prediction modified accordingly, the knowledge of this modification would again introduce a new element, which would require a fresh calculation, and so on *ad infinitum*. This seems to be a difficulty inherent in the double nature of the mind as subject and object—a difficulty which makes it possible to pronounce *a priori* that complete prediction of the results of mental process must always be impossible. It is a difficulty which does not apply to prediction in the physical world of space, considered, as seems necessary at present, in abstraction from the world of mind. It could only modify our view of that, if the real connexion of body and mind were fully discovered. As it is, mental processes, though obviously corresponding to physiological, and useful for their investigation, have only too much the appearance of a totally independent world from the point of view of causality and reciprocity. So that the distinction is justifiable, when we say that the results of human volition, alone among causes, must *of necessity* remain incapable of prediction. And this fact, along with the greater empirical difficulties of prediction in the case of mind, seems sufficient to account for the illusive belief that the will, at any rate, is free, though it be admitted that nothing else is. The failure to discover a cause in any particular instance, of itself encourages a belief in the uncaused; and when to mere failure is added an absolute impossibility of discovery, the case is naturally strengthened.

That the belief in uncaused volition is illusory, the progress in scientific method, with the resultant growth of empirical psychology, has rendered it more and more difficult to doubt. Yet this fact by itself would be no argument against Free Will. For, in however many instances causation were proved, though that might, perhaps, be a cause

[1] Unless, indeed, we are to carry out logically Professor Huxley's doctrine ("Hume," *Collected Essays*, vol. vi., p. 86) that 'there is only a verbal difference between having a sensation and knowing one has it'.

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of our expecting it in others, yet it would not be, by itself, any *reason* for that expectation. An inductive argument always needs, as empiricists put it, to be supplemented by the assumption of the uniformity of nature. And that this assumption is not in this case an assumption, but an *a priori* necessity, may, I think, be considered to have been sufficiently proved by Kant's argument in the Analytic. He there shows that every event must have a cause, if there is to be an objective succession in time; and such an objective succession is certainly presupposed by all our actual experience. Accordingly Kant himself fully recognises the *a priori* certainty of the Deterministic view, as was shown at the beginning of this paper.;[1] and it seems inevitable to agree with him.

As for 'the immediate affirmation of consciousness in the moment of deliberate action'[2] which is asserted to stand against Determinism, great care is needed in deciding what it is that consciousness then affirms. The first thing to be noted with regard to this matter seems to be that, if such an affirmation is to apply to the Free Will controversy, it must affirm, not the possibility of my *doing* what I choose, but the possibility of my *choosing*. In fact, the controversy seems to narrow itself to the question of Free *Choice*. For it is only choice which distinguishes voluntary from non-voluntary action, and the ordinary Libertarian would hardly maintain that non-voluntary actions could be free. Thus the question is also seen to be a wider one than that which is ordinarily discussed. For since the physical possibility of the action, which is the possible object of choice, cannot be considered to be a necessary element in constituting it good or reasonable, in the sense which is fundamental for 'practical reason,' it seems hardly possible to exclude mere choices, such as that I should have the genius of Shakespeare, though, that I should have it, might be reasonably considered physically impossible. Even such a case as a choice to prevent the sun rising to-morrow can hardly be excluded from the discussion. For though, perhaps, none but a madman would make such a choice, yet his choice would prove that it can be made: and we ourselves do often choose through ignorance what is impossible in this sense; the only reason why we do not choose what we also *think* impossible, seems to be not that we cannot (either in the deterministic or libertarian sense) but that it does not seem worth while. The question, whether a choice will produce in any degree

[1] *Cf.* P. V. Pref., p. 12-end. [2] Sidgwick, *Methods*, p. 65.

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the effect chosen, seems to be merely one for experience to decide, and we judge of it just as we judge of the probabilities and possibilities of events in the physical world. It does not seem to be concerned in the Free Will controversy, if the issue of that controversy be clearly stated.

Locke and Hume,[1] indeed, agree marvellously in their treatment of Liberty, both asserting that it means simply 'a power to act as we choose'. But it would seem to be for this very reason, that they are able to treat the Free Will controversy so cavalierly as they do. If the question were merely as to whether we did not sometimes do what we choose, it would, as they say, be obvious what answer we should give; but it would not, as they also say, be obvious that liberty in this sense was not contrary to 'necessity,' since the question 'Can we choose?' would still remain unanswered. They both, it is true, leave an ambiguity even on the first point, by not sufficiently considering what is implied in their notion of 'power'; but, nevertheless, when they speak of a power to act as we choose, they would appear to mean only, as Locke says,[2] that the existence or non-existence of the action is dependent upon our choice. In this part of free action, then, it may be admitted that they leave no room for anything contrary to 'necessity'; since their notion is that the action is necessitated by the choice. Locke, however, sees that the point in dispute occurs not here but in the question[3] Are we free to choose? And this question he dismisses as absurd, on the ground that it means: Can a man will, what he wills? But it does not mean this, unless his definition of freedom, as power to do what I choose, be already accepted. It would indeed be absurd to ask 'Can I choose to choose?' in the sense 'Am I free to choose which of two alternatives I will choose?' But Locke has no right to assume that this is meant by the question 'Am I free to choose?' That question may mean 'Am I the original cause of my choice?' and this he leaves undiscussed. Both Locke and Hume therefore neglect the point of the controversy by their definition of freedom. They have, however, done some service to the question, inasmuch as their treatment of it is a protest against the confusion of freedom 'to do, if I choose,' with 'freedom to choose'. Their defect is that they assume that it was an answer to the first question only, which was really wanted; and hence their contempt

[1] Locke: Essay ii., 21, 14 foll. Hume: Treatise iv., p. 110 foll.
[2] § 27. [3] § 22.

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of the dispute. As a matter of fact, I am free, in the ordinary political sense, when 'I do what I choose, *because I choose it*,' since there the immediate cause of my action lies in myself, *i.e.*, in my choice. But that is not freedom in the sense demanded by Libertarians. What they wish to maintain is that the choice itself is caused only by a self which is an uncaused entity; and this implies that, where alternatives are presented, their choice between them is wholly independent of their previous habits, disposition, etc.

The question then is: 'Does consciousness affirm, when alternatives are presented, that I can choose any of them that I think either good or bad?' which would seem to be equivalent to 'any conceivable presented alternative'. And with this we come to the last ambiguity of statement, which seems to me to stand in the way of our giving a clear answer to the question. Professor Clifford (*Lectures and Essays*, p. 327) rather ingeniously urges that, if the deliverance of my consciousness is to be 'of any use in the controversy,' it must be 'competent to assure me of the non-existence of something which by hypothesis is not in my consciousness,' *i.e.*, the subconscious mental elements which the Determinist must suppose to determine the choice. But it seems possible to surmount this objection by maintaining that it is enough if consciousness can make a positive affirmation as to what is cause of the choice, without requiring it to prove exhaustively that nothing else in the world can be. If the man of science before he enunciates a law is always bound to prove that no other elements besides those whose constant connexion with the effect has been observed by him, really contributed to it, no scientific laws have been discovered yet. If, therefore, consciousness does affirm that 'I' am the cause of the choice, that should be sufficient. But then the question arises, What can it mean by 'I'? Is it quite certain that when consciousness seems to affirm that '*I can* choose so and so,' it means more than 'it is possible that such and such a choice will take place in my mind'? If it does not mean more than this, its affirmation is not against Determinism; since, as we have tried to show above (p. 187), even on the Deterministic hypothesis, it must always be entitled to affirm the latter proposition, even if it does not always exercise its right. For by saying that such and such a choice is possible I imagine we can mean no more than that we do not know but that it will happen; and even if 'the uniformity of nature' can be proved in such a sense as to justify an assertion with regard to any event whatever

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that it certainly will not happen, this can never be the case with regard to an event conditioned by a conscious forecast.

It seems, therefore, that the 'affirmation of consciousness' as against Determinism, disappears on the attempt to make it precise. The attempt to find a more exact meaning for the vulgar notion of freedom has thrown us back upon the conception with which we started. Instead of free action being the action of an 'uncaused self,' we have to be content with it as self-caused action : anything may be said to act freely in so far as the immediate cause of its changes lies in itself. We have now to see how this notion is connected with that explained above as derived from Kant ; and to examine whether there is any justification for applying it in an exclusive sense to Will—a restriction which Kant seems to adopt in the application of his notion also. If the restriction turns out to be unjustifiable in both cases, we shall have disposed of Schopenhauer's view of the ultimate reality—a view which, according to Kuno Fischer, is also that of Kant.

It was one of Kant's great merits[1] in the *Critique of Pure Reason* to have pointed out that there is nothing absolutely 'inner' in the objects of experience, either of the outer or inner sense, either in nature or in mind. He gave the final blow to the doctrine of 'essences' and 'faculties,' as principles of explanation, by showing that advance in scientific knowledge presupposed the complete interdependence of things ; that all we can know for certain about them is their relation to one another. This indeed was one of his motives to his distinction of Phenomena and Dinge an Sich, for he could not avoid the conviction, though he could not justify it, that there must be something self-subsistent somewhere. But his main point was that, if you treated natural objects as if they were self-subsistent, you could not escape the most unbearable contradictions. This was the 'natural dialectic of Reason'.

In the *Critique of Judgment* however, he began to see that he had over-emphasised the doctrine that all we can know is *mere* relations. He here recognises that a philosophy of nature must take into account the 'matter of knowledge,' as such, since it too must have some element of necessity. Thus, it is not only the categories and the pure forms of Intuition which have an *a priori* certainty; but the sense-manifold must also be of such a nature that the categories and forms of Intuition will apply to it. It must be of such a nature as to supply terms to these relations. And,

[1] *E.g.*, in the 'Amphibolie,' R. V., p. 225.

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though the amount of the nature of objects of experience, which is thus determined *a priori*, is far from giving them a claim to be considered completely rational, it yet gives them a certain amount of inwardness and self-subsistence.

Thus, in considering the course of Nature, it becomes obvious that, though we try to explain what happens by referring it in each case to something prior in time, and so on *ad infinitum*, there is also presented another element left out of account by this method (the only one allowed by Kant in the *Pure Reason*), which also helps to explain what happens. This element is the actual qualitative nature of the events we are trying to explain. So far as mere causal connexion is concerned, there is no reason why there should be any change in the world whatever, except that which is involved in the lapse of time. Each moment of time is different from the one before it, just because it is after and the other before, and, if the world were quite without other differences, there would yet be a necessary connexion between its state at one moment and its state at the next, exactly fulfilling the type which Kant sought to prove against Hume. For the state of the world at one moment would be a different *thing* from its state at the next, in the sense in which Hume denied that you were really entitled to infer from the existence of one thing the subsequent existence of another. But, even if this were so, causation would obviously not afford a complete explanation of the course of nature. The world which did thus persist unchanged through time, would still itself be part of the reason of the course of Nature. We could not exhaust our knowledge of each successive state by saying it was such as to have been the effect of the one before and the cause of the one which followed it. It would still remain true that each state was what it was, besides being related to those before and after it; each would have a content—the content in virtue of which each was identical with that of every other; and the nature of this content would require to be taken into account in explaining each state. We can assert *a priori* not only that each state of the world must be necessarily connected with those that precede and follow it, but also that it must have some definite qualitative nature. It is not only what it is because the previous state was what it was, but also because it is what it is.

This consideration seems obvious enough, but yet it is one which is very apt to be neglected. It was recognised in the Aristotelian doctrine of 'formal' causes; but has been put out of sight by the procedure of modern science, which seeks always for efficient causes, without sufficiently con-

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sidering that there could be no efficiency unless there were also 'form'. It is no doubt of more practical importance to establish the relation between things than just to recognise those things; and Kant, in his desire to justify the methods of natural science, seems to have been misled, by the prominence given in it to the discovery of relations, into an unjustifiable neglect of the qualitative aspect of things. There was also, as has been pointed out above, another reason for the emphasis which he lays on relation—namely, his desire to protest against the assumption that the objects of experience were real, or *absolutely* self-subsistent. And finally, quality, so far as it is necessary, is only one: there are not, as in the case of relation, a number of different forms to justify. But, still, from a philosophical point of view, it seems to be of equal importance, and is always presupposed by science in discriminating the things between which relations are to be discovered.

Things, then, in so far as they must be terms of relations, may be said to have a self. But this degree of selfhood would not suffice to define the notion of freedom. For we are as yet not entitled *a priori* to infer in the world any differences of quality. And if there were none, as in the case above supposed, there would be no reason to suppose that the causal connexion between the successive world-states was in any way dependent on their qualities. The quality would necessarily be taken into account in explaining the series as a whole; but the causal connexion might be considered to hold between them purely as *existing, i.e.*, in so far as they had matter, in the Aristotelian sense, not in virtue of their form. And this, it is to be noted, is all that Kant proves for causality in the *Critique of Pure Reason;* the necessary connexion is between the existence (Dasein) of things. But, as a matter of fact, there are differences of quality in the world of experience, and whatever be the justification for it, there is connected with this difference of quality a most important addition to the notion of causality. Causality in Kant's sense would not justify any Law of Nature, and yet without these science would be impossible. There is implied in any law, that 'Like cause has like effect' and *vice versâ;* and in this conception we have, at once, the causal relation between things, conceived as depending on their qualitative nature.[1] It is no longer the thing, considered as individuated merely in time, which is necessarily connected with those preceding and following,

[1] Under 'quality' is included, for this purpose, position in space.



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but the thing, as distinguished by a particular quality, is considered to have a necessary connexion with other things so distinguished. It is not assumed that all the qualities in the world might not be different from what they are; but it is assumed that given any one quality it has a unique causal relation with some other one, in the sense that only the thing of which it is a quality can be cause of the thing, of which that other is a quality, and only that other thing can be the effect of the first thing.

With this we seem to have arrived at the notion of a thing with a distinguishable self, having a distinct efficiency in virtue of that self. And in this conception of the course of nature there is contained the union of Determination with Freedom, in its simplest form. Each thing marked by a simple qualitative nature, is no doubt determined in that it is the effect of some other thing, and, given that other thing, it was forced to appear. But also it is itself similarly the cause of something else, and free so far as its effect depends upon its own nature. It is nothing against this, that its own nature depends in its turn upon something else; for that something else could not by itself have produced the effect which it produces. It is an essential link in the chain, and though the effect is not solely due to it, some part of the effect is due to it and to it only.

Now from the common point of view which takes the world of experience as ultimately real, this, in which every part of that world is alike free and alike determined, is the only sense of freedom, which can withstand criticism as in no way based on arbitrary distinctions. It is a sense, which would, to most, seem to be the same as that of determination. But it can, I think, be seen to underlie all common uses of freedom; and it is largely to the difficulty of distinguishing it as an irreducible aspect in mechanical causation, that there is to be attributed the mistaken attempt to show that the notion of freedom is irreducible by maintaining the existence of uncaused choice. We have now to show the connexion between this and Kant's sense of Freedom; and to consider whether he can give any justification for speaking as if his, any more than the popular sense, were to be found exhibited in special cases in the world of experience, *i.e.*, especially in human volition, and not everywhere alike.

III.—Kant's use of the term Freedom does seem justified in that it coincides with the popular one in opposing the view that the aspect of the world as causally determined is alone sufficient for its explanation. Both alike recognise that to define a thing's relations to other things is not the most that

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can be done in knowing the world. But we have seen that Kant does not, in the *Critique of Pure Reason*, seem to allow that freedom, in the sense just explained, where it consists in recognising the part played in nature by each thing's form, is an objective notion. His failure to do so seems to be due to his confusion of this notion with the wider one of systematic unity in Nature, which involves it. It is in the same way that his notion of Freedom involves the common one, but also goes much further. According to him Freedom means not only that each part of Nature is necessarily connected with all the other parts in respect of its form as well as in respect of its existence ; but also that all these different forms, considered in themselves, together with their differences and the laws of their connexion, must be taken into account in explaining the world as a whole : and since the world as a whole is an impossible conception, if the objects of experience be taken to be its ultimate constituents, since they are necessarily conceived as in the infinite forms of space and time, the complete reason of all that appears must be placed in a supersensible reality. This supersensible reality is the world as a whole, and is the reason of everything that appears ; and, as such, it has Freedom. As such, too, Kant will not allow it to be *known* as more than a mere Idea ; but there seems reason to think that this was only due to his failure to reconcile two different criteria of reality : so that he generally considers the being given in the context of experience essential, and since the context of experience can never offer the required completeness, such completeness must be condemned as merely regulative.

Now our question is, whether a relation, really analogous to this of the real world to the world of experience, is presented in the relation of the human will to its actions, and in that alone among the objects of experience. Kant himself distinguishes between freedom 'in the cosmological sense' (which is the one we have hitherto discussed as his) and freedom in the 'practical sense'; but he asserts that the latter is possible, only if the former be also possible.[1] In the 'Critique of Practical Reason,' he proves that 'practical Freedom' is actual, and from that infers that 'cosmological Freedom' is also actual.[2] What, then, is his account of 'practical Freedom'?

'Practical Freedom' is something which must belong to all 'reasonable' beings, as such.[3] It is defined negatively as 'the independence of our choice from compulsion through

[1] R. V., p. 371. [2] Pref., pp. 3 and 4. [3] G., p. 296.

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impulses of sense';[1] and positively as 'a power' or 'causality' of 'reason,' 'to begin a series of events entirely of itself'.[2] 'Pure practical reason' is identified with 'pure will'; and 'will' again, up to the end of the 'Critique of Practical Reason,' seems to be identical with 'choice' (Willkühr), though in the preface to the 'Metaphysic of Morals' (p. 23), they are distinguished in a very important manner; for it is there declared that only 'choice' can be called 'free,' 'will' being concerned not with 'actions,' but only, like practical Reason, with the giving of Moral Laws.

Kant's account of the way in which we must conceive 'practical freedom' in relation to experience is as follows: Every 'cause' (Ursache) has a 'power' (Vermögen), which may be also called its 'causality' (Causalität), which 'power' is necessarily connected with the subsequent appearance of a definite 'effect' (Wirkung); and the law of this connexion is called the 'character' of the cause. The transition from the 'causality' to the 'effect,' however it be conceived, is called the 'action' of the cause (Handlung). Now in 'natural causation,' the 'causality' of every cause is also an effect of some previous cause, and so on *ad infinitum;* and the 'action,' therefore, is merely a transition in time. But for every natural object, we must also suppose there to be an intelligible ground; and there is no contradiction in thinking of this intelligible ground as cause (in another sense) of the 'causality' of the natural object. The 'causality' of the natural object would thus be effect both of some preceding natural object and also of its intelligible ground. But the intelligible ground is, as such, in no way subject to 'time-conditions,' and therefore its 'action' in producing the 'causality,' which is its appearance, is not a time-transition. It cannot therefore be said to 'begin to act' at any time, although its effect, *i.e.* the 'causality' of the natural object, has a beginning. It is thus original cause of an appearance, which is on another side also effect of a conditioned cause and in its turn cause of other appearances. It begins 'of itself' a series of events in time, without itself beginning to act.

Now, so far, except for the ambiguity of the word 'cause' as applied to an intelligible object, and except for a lack of fixity about almost all his terms, many of which are at one time distinguished, and at another used as synonyms (*e.g.* Causalität = Charakter = Handlung), there seems no reason to object to Kant's account. But it is an account which

[1] R. V., p. 371; *cf.* M., p. 11. [2] R. V., p. 372; *cf.* M., p. 11.

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would apply to any natural object whatever, and we have now to consider whether it will apply in a special sense to human volition.

I quoted above (p. 184) a passage of Kant,[1] in which he says that 'man knows himself' not only through his senses, but 'also through mere apperception, and that too in actions and inner determinations, which he cannot ascribe to the impression of the senses. He is to himself, it must be admitted, partly a phenomenon, but partly also, namely in view of certain faculties, a merely intelligible object, because his action cannot be ascribed to the receptivity of sensibility. We call these faculties Understanding and Reason.' And he goes on to say that Reason appears pre-eminently as the faculty of a supersensible being. We are next told that the Imperatives expressed by 'ought' make it plain that 'this Reason has a Causality, or at least that we represent it as having one'. And finally we have the following sentence: 'Now this "ought" expresses a possible action, of which the ground is nothing more than a mere conception; whereas, on the contrary, the ground of a merely natural action must always be an appearance'.

In this passage I think we have presented the full extent to which Kant's error of restricting practical freedom to reasonable beings goes, together with the confusions on which that restriction was based. One ambiguity occurs in the last sentence; and it is a very important one, since it seems to have given rise to many false notions of what Kant meant by freedom. This sentence expresses in an antithetical form the difference between 'free' and 'natural' causality—which he frequently says are the only two kinds of causation possible. The first is distinguished by this, that its ground is a mere conception; whereas the ground of the second is always a phenomenon. Now from the account given above of Transcendental Freedom it will appear in what sense I accept this description of free causality. A free cause must necessarily appear to us as a logical reason, and, so far, as 'a mere conception'; because it is not, as such, presented to us as an object of intuition. It is always a universal, and though we can know that it must also be an individual, we cannot experience it as uniting both characters. But from what Kant says in the preceding context, as well as from his general account of will elsewhere, I think it is plain that he is not thinking of 'a mere conception' in this sense. When our will is

[1] R. V., p. 379.

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singled out as having a special kind of causality, inasmuch as it can be 'determined to action by the presentation (Vorstellung) of certain laws,'[1] Kant shows what it is he is thinking of. The 'mere conception,' in the only justifiable sense for freedom, would be the laws themselves, and not the 'presentation' of the laws. Every 'conception' may be regarded from two points of view, either as a psychical existent, or from the point of view of its content; and it is this very important (and obvious) distinction which Kant appears to have neglected. If the causation exercised by the presentation of a conception were enough to justify freedom, freedom would be no more than that aspect of every mechanical process, which was distinguished above as the only precise sense assignable to freedom, on the common view which regards the objects of experience as real; and thus there would not even be an appearance of conflict between it and natural causality. For it is precisely 'presentations' to which Kant repeatedly asserts that the objects of experience are reduced, when they are viewed, as he holds they must be, as appearances. An appearance is a 'mere presentation,' and it is only between such that the causal laws will hold. There would therefore be no difference between 'an action of which the ground was no more than' the presentation of 'a conception,' and an action of which the ground 'must always be an appearance': for the presentation of anything whatever is, as such, an appearance.

Kant himself would seem to recognise this in a passage of the 'Canon of Pure Reason,' in which for that very reason he is driven to an almost direct contradiction of what he says in the context quoted above. In this passage (p. 530) he says: 'Practical Freedom can be proved through experience. For not only that which charms, *i.e.*, affects the senses directly, determines human choice, but we have a power to overcome impressions upon our sensual desiderative faculty (Begehrungsvermögen), through *presentations*[2] of what, even in a somewhat remote way, is useful or harmful; and these considerations of that which, in view of our whole state, is desirable, *i.e.*, good and useful, are based upon Reason. Hence also Reason gives laws, which are Imperatives, *i.e.*, objective *Laws of Freedom*, and which tell us, what *ought to happen*, even though perhaps it never does happen, and are distinguished in that respect from *Natural Laws*, which deal only with that *which happens*.' He then goes on to suggest that, on a wider view, what here appears as freedom, might be seen to be

[1] G., p. 275. [2] My italics.

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nature (which would, indeed, with regard to part of his statement, be certainly the case) but this, he says, is a speculative question, irrelevant just here. Finally he comes to this: 'Accordingly we know practical freedom through experience as *one among natural causes*, namely a causality of the reason in determination of the will; whereas Transcendental Freedom demands an independence of this reason itself (in view of its causal power to begin a series of appearances) from all determining causes of the sense-world, and so far appears to be contrary to the Law of Nature, and hence to all possible experience; it therefore remains problematic. But for reason in its practical use this problem is irrelevant. . . . The question with regard to Transcendental Freedom concerns solely speculative knowledge. We can set it aside as wholly irrelevant when we have to do with the practical.' Now in this passage Kant states very well what is characteristic of human volition; and his definitions of 'will' are constantly expressed in the same fashion. Will differs from other instances of natural causation, inasmuch as in it the 'idea' (to use the common English word for 'Vorstellung') of something, which is not yet real, tends to bring about the realisation of that thing; and he may be justified in saying that this process 'is based upon Reason,' since to have an idea of anything either real or imaginary, presupposes that faculty of cognition which distinguishes man from beasts, and still more from inanimate nature. Nay, more than this, in the special instance, which Kant takes to be the only truly 'moral' willing, where the idea which acts as cause, is the idea of conformity to a universal law, the content of the idea is so abstract that it may be confidently asserted that only reasonable beings are capable of having such an idea. But nevertheless the idea is even here still 'an appearance,' and, as such, separated by an impassable gulf from *the content, of which it is an idea.* And, inasmuch as it is in its character of idea, *i.e.*, as a psychical existent, that it produces an effect, the causation is still merely 'natural'. This, as we have said, Kant in the present passage fully recognises. But it is only the more remarkable that he should speak of Reason in the same context as 'giving laws of Freedom,' as if it were Reason in the same sense, which is the source on the one hand of objectivity, and on the other hand of abstract ideas, whether true or false. In this Kant betrays the too psychological standpoint above which he seems never to have completely risen in treating epistemological questions, in spite of the enormous services which he did to epistemology, as well in the metaphysics of ethics as elsewhere.

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He supplies, as it seems to me, more materials for a true view than any one else, and those, too, in a wonderfully forward state of preparation, but nevertheless they are still for him encumbered and confused with the irrelevant matter, from which it was his merit to set them free for others. It is perhaps impossible to dispense with the term 'rational' for what is true or objective, especially after its full adoption by Hegel; but it is extremely important to avoid confusing the 'rational' in this sense, which is the fundamental one for Kant's system, with the 'rational' in the sense of that which implies the psychological faculty of making judgments and inferences. The distinction between what is true and what is only believed (although only a 'rational' being can believe) is one which cannot be either done away or bridged over, however small be the amount of what we may be thought to really know in comparison of what we must be content to believe; and it is this distinction which is here in question. Knowing, the function of Reason, is on one side a natural function, and, as such, it is indistinguishable from believing; but, in so far as knowing *is* distinct from believing, *i.e.*, in so far as that which is known is true, there are no two words which express a difference more profound. When Kant talks of the only true morality as based upon the laws which Reason gives itself, the whole course of his work shows that he means laws which tell us *truly* what ought to be done; it is, indeed, only on this condition that he could claim universality for them.[1] In this sense 'Reason determines the Will' whenever the idea which is cause of our action, is an idea of what is truly good. But it is only in an utterly different sense that 'Reason' can be said to 'determine the Will,' whenever the idea, which causes our actions, implies the power of abstraction. And it is only in this second sense that such determination of the will can be called a 'practical freedom' which is independent of 'Transcendental Freedom'. Accordingly Kant himself, as we have said, recognises elsewhere that 'the practical conception of freedom is based upon' the 'transcendental Idea of Freedom' (p. 371); and again, speaking of freedom 'as one of the faculties which contain the cause of the appearances of our sense-world,' *i.e.*, as practical, in distinction from transcendental, freedom, he declares that we cannot hope to establish its actuality in experience, 'inasmuch as we can never infer from experience to anything *which must not be conceived at all*

[1] This is the ground of Kant's distinction between the Categorical Imperative, or *Objective Law*, and the mere Maxim or *Subjective Principle*.

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*according to law of experience'* (p. 385). And this seems sufficiently to contradict his statement in the 'Canon' that 'we know practical freedom through experience as one among natural causes,' and that 'for reason in its practical use' the problem of transcendental freedom 'is irrelevant'.

Kant has therefore confused the purely natural process of human volition, with the transcendental aspect of it, which alone entitles us to ascribe to man 'practical freedom'; and it is solely on this confusion that the special place he assigns to man as a 'free' agent seems to be based. It is true that the content of the idea, which acts as cause in volition, is different from the content of any other natural cause; but that content is merely the form of the cause, and difference of form is something which in no way renders one natural cause more or less of a natural cause than any other. Indeed Kant himself seems to me to have guarded sufficiently against misapprehensions on this point by the rigour with which he rejects the attempt to conceive as prior in time, that which, if it determine the will, shows that will to be 'practically free'. In this rejection he is quite consistent. 'The action,' he says (R. V., p. 381), 'so far as it is to be imputed to thought' (Denkungsart, identified just before with 'intelligible character'), 'as its cause, nevertheless does not follow from it at all according to empirical laws, that is, so that the conditions of pure reason, but only so that the effects of pure reason in the appearance of the inner sense, *precede*.' In other words, that which is to be regarded as the condition, or, as Kant calls it, cause, of the action, in so far as that action exhibits practical freedom, *does not precede the action in time*. The action is only preceded by the consequence, or, as Kant calls it, effect, of this 'intelligible' condition; and hence the action itself may be said to 'follow from' the condition, as a conclusion follows from premises, but not to follow it in the time-order (*cf.* above, p. 196). Now, in the case of moral action, this 'effect,' which produces the action, is just the presentation of the moral law; and the intelligible condition of that effect is the moral law itself. Kant himself allows that this effect or presentation must always be present in human volition; and, what I wish to maintain, is that this is all that the analysis of human volition, as such, can ever show to be present. I have examined the confusion upon which Kant's contrary view that the law itself is somehow to be obtained by analysis of volition, that it is given by a 'pure Will' or 'practical Reason,' seems to be based; and that confusion seems sufficient to explain the view and to show that, for Kant at any rate, it was base-

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less. It only remains to give a positive summary of the reasons against the legitimacy of any such view.

The point at issue is this: Whether 'will' can be understood at all as other than a form of 'activity'; and whether, if it be an activity, it must not be conceived as essentially conditioned by time, and therefore, in Kant's language, a mere 'appearance'. If it be a mere 'appearance' the conception of a 'pure Will' is nonsense; and 'will' cannot be ascribed as an attribute to anything real—either to God or to the Transcendental Ego.

That 'will' is a form of 'activity' has, I suppose, never been disputed. Kant himself, as we have seen, refers us, for our notion of pure Will, to the pure activity of the Ego. What is disputed is whether psychical activity, at least, may not be considered as fundamentally real. Our contention is that it cannot be so, because it is inconceivable except as taking place in time. That time itself cannot be conceived to be fundamentally real is always admitted by Kant himself, and indeed he has attempted a proof of it. How far his proof is satisfactory, and whether, if unsatisfactory, any other proof is forthcoming, is too large a question to be fully discussed here. I can only state that the arguments by which Mr. Bradley has endeavoured to prove the unreality of Time appear to me perfectly conclusive. The question which remains, then, is whether we cannot conceive a timeless activity; for it is to such that Kant must be referring us, for justification of the notion of 'pure Will'. That such a conception is very difficult to maintain appears plainly enough from the attempt of Lotze,[1] who assumes psychical activity to be the fundamental reality, and finds himself forced, in consequence, much against his will, to accept the ultimate reality of time.[2] And we have seen that Kant has nothing valid to say for it. It is a notion which would seem to rest on a combination of the notion of causal dependence between empirical things in time, with that of logical dependence. Both are necessary connexions, but in the one case between things, in the other between concepts. That the relation of reality to appearance, or the inter-relation of realities, must be conceived as that of logical necessity, changed (in a way which we cannot understand, because we have no intelligible intuition) by the fact that it there holds between things, has been maintained above. And if this relation be all that is meant by 'pure activity,' there seems no objection to the notion;

[1] *Metaphysic*, § 156.

[2] See my article on 'Time' in MIND, N.S., 22, p. 240.

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only 'activity' seems a misnomer for it, as great as Kant's 'causality' for the same notion, apt only to create confusion. If anything else be meant, it is to be wished it were brought forward; as it would then be possible to discuss it. Meanwhile, I must be content to let the matter rest in this result: That if the logical relation of reason to consequent, regarded as synthetic, *i.e.*, holding between real objects,[1] is to be considered as established by 'Will' and the type of its 'activity,' then pure 'Will' may indeed be the fundamental reality; but I should still protest that it would be better to keep that word for the distinct notion which it ordinarily conveys, instead of transferring it to another notion which has long had a sufficiently distinctive name of its own.

My conclusion, then, is this: That 'will' is only a special form of natural causality, or, rather, a natural causal process, where the cause is of one definite sort. It is a special form of natural causality, just as explosion of gunpowder by a match is one special form of natural causality, and explosion of dynamite by concussion is another. And, that on which I wish to insist, is that voluntary action, of whatever sort, whether autonomous or heteronomous, exhibits 'freedom,' in the sense which I have hitherto explained as essential to Kant's notion, no more and no less than gunpowder explosions or any other natural process whatever. It seems, indeed, strange that this conclusion from his doctrine should have escaped the notice both of himself and others to the extent to which it has. For he repeatedly asserts that for every 'appearance' we must suppose an intelligible ground (the Ding an Sich), and it is just this dependence of the cause of his actions on an intelligible ground (the Transcendental Ego), which he describes as constituting man's 'practical freedom'. Moreover, even the identity of the Ding an Sich and the Transcendental Ego has been suggested by him and accepted by others; though this would not be necessary to justify the inference, since the dependence on an intelligible ground is by itself sufficient for practical freedom. When this is acknowledged, 'practical' freedom disappears altogether as something intermediate between natural causality and transcendental freedom. For, as Kant himself says, nothing intermediate is possible; only two sorts of causality can be conceived at all. 'Freedom,' then, for Kant means only 'transcendental freedom,' and 'transcendental freedom' is not 'practical,' in the sense that it is inseparably connected with 'action' alone. It is true that actions are dependent on

[1] See P. V., p. 52.

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'transcendental freedom,' but that is only because it is the relation which holds between the empirical causes of those actions and the transcendental ground of such causes. Whether sensible objects produced effects, and so vindicated their right to be considered practical (as they always must), or not, they would equally be results of 'transcendental freedom'.

The degree to which Kant himself was forced to recognise the unpractical nature of his conception of Freedom, is singularly illustrated by a passage in the 'Metaphysic of Morals,' to which I have referred above (p. 196; M., p. 23). He here declares that 'Will,' which he has hitherto regarded as identical with 'pure practical Reason,' and as that which is *alone* endowed with 'Freedom' in his special sense, cannot be called either 'free' or the reverse, because it is not 'susceptible of compulsion'. This 'susceptibility of compulsion' implies subjection to natural law, and, as so subject, he declares that human 'choice' (Willkuhr) may be called 'free'. He would seem, therefore, here to recognise that 'action' can only be conceived as a time-process; indeed he says that 'Will' does not refer to 'actions' (Handlungen); and it is only because he sees that he would be departing too far from the ordinary use of 'freedom,' if he disconnected it from action, that he now denies freedom to 'Will'. The fact is that his previous doctrine has already departed from the ordinary usage, further than he himself was fully aware; and hence the inconsistency, with which he now tries to patch up the discrepancy. The true way of meeting the difficulty would have been, as has been pointed out, to insist on his meaning of Freedom as the true one, and to give up the special connexion which he had hitherto asserted between it and human volition: to recognise that 'Willkühr' was a mere 'appearance,' and, therefore, not 'free,' and that, that which was free, had not even so much connexion with volition as to deserve the name of 'Will'. There would, then, have stood out clearly the problem which remains for Kantian Ethics—how to establish a valid connexion between the notion of Transcendental Freedom and that of End or Good.

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## IV.—THE PARADOX OF LOGICAL INFERENCE.[1]

By Miss E. E. C. Jones.

"We have," Mr. Bernard Bosanquet says, "not got Inference unless the conclusion (i.) is necessary from the premisses, (ii.) goes beyond the premisses."[2] This is, as he observes, a paradox; and whether or not he has solved the problem of Logical Inference, he has at least helped us towards a solution by bringing together in clear and sharp antithesis the requirements which have been felt and insisted on by different writers on the subject. Sometimes the one point, sometimes the other, has been treated as of primary, if not exclusive importance.

It has not perhaps ever been expressly denied that in *Logical Inference* the truth of the conclusion necessarily follows from the truth of the premisses; but in much that has been said by 'Materialist' or 'Inductive' logicians, this requirement is dropped into the background or lost sight of. And the condition that a "true Inference"—an Induction—should in the conclusion give us "new facts," not covered somehow by the premisses, is of course incompatible with such a relation between premisses and conclusion as that the latter follows from the former. A conclusion that expresses facts different from those covered by the premisses, can never be *proved* by them.

But *some* difference between premisses and conclusion is

[1] Read before the Aristotelian Society, 17th January, 1898.

[2] I understand Mr. Bosanquet to speak here of Logical or Valid Inference—of that relation between premisses and conclusion which, taken one way (from premisses to conclusion) is Valid Inference, and taken the other way (from conclusion to premisses) is proof (*cf.* Whately, *Elements of Logic*, bk. iv., ch. iii., § 1). It is with Inference as thus limited that I am primarily concerned in this paper. It seems to be in the *relation between premisses and conclusion* rather than in psychological process (which may be logical or not) that the test of validity must be sought. What (1) Logical Inference has in common with (2) Non-logical Inference is that, in both, belief of the premisses is the *Cause* of belief in the conclusion; what distinguishes them from one another is that in (1) the premisses are also the *Justification* of the conclusion, while in (2) they are not so.

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necessary for Inference. The sentences which express premisses and conclusion, always differ from each other in some respect. In

S is P, therefore S is P

there is no Inference, there is nothing but bare tautology. The words which express a conclusion cannot be the *same* (in the sense of *precisely similar*) as the words which express its premiss. There is then in Inference newness of verbal expression, though not newness of fact. But the 'newness' required in the conclusion of an Inference can never be a *mere* verbal difference (if there can be said to be such a thing). Difference of language, to be of significance, must correspond to some difference in that which it expresses. *Ipsissima verba* must *cæteris paribus* express *ipsissima judicia*, and different words must, I believe, always express a somewhat different judgment (*cf. post*).

It is not generally disputed that in so-called Immediate Inferences, and in all Syllogistic Inferences, the proposition 'inferred' to, is true, if the proposition from which we set out is true; but it has been widely held that in many of these cases the conclusion, though true, is not an *Inference*, because there is nothing 'new' in it. The objections raised by Dr. Keynes and some other logicians to accepting conversions which involve the passage from General to Particular, as valid, are not objections to conversion *as such*, and involve reference to relations of *classes* as well as of the *terms* (*quâ terms*) of the propositions concerned. By those who reject Conversion from General to Particular as valid, Subalternation and Mediate Inference from Universal Premisses to a Particular Conclusion are rejected on the same grounds. Subalternation is rejected on a different ground by, *e.g.*, Bergmann, according to whom Inferend and Inference must have the same matter (*Sachverhalt*) but a different way of looking at it (*Auffassung*).

While it has been denied that the Obverse and Converse, etc., of a proposition deserve to be called Inferences from it, and that there is any true Inference from premisses to conclusion in syllogism, on the ground that the so-called conclusion in any such case is not 'new,' or that there is no 'movement of thought' as between premiss and conclusion, we find Mill and others allowing to 'Induction' that title of Inference which they refuse to Eduction ('Immediate Inference') and Deduction.

This is to give up Inference altogether as a *logical* relation between propositions; for unless Induction is assimilated to some recognised form of Eduction or Deduction, it can

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only be of such a kind that a general conclusion is based on the justification of particular instances alone, being of the form

This A and that Aand the other A are B,
Therefore all A's are B.

This may be a *psychological* Inference, a way in which we often actually *do* 'reason,' but it is not a logical inference in the sense that if the premiss is true the conclusion must be true. The position that there is true Inference from Particulars to Generals (or to other Particulars) but no true Inference either from the premisses of a Syllogism to its conclusion, or from inferend to inference in eduction, does indeed seem to have reached the very summit of paradox.

An attempt to compare the accounts given of Valid Inference by different logical writers, brings out one or two points rather strikingly. The definitions given are all pretty much alike, and generally exhibit some degree of vagueness or ambiguity, while there is great diversity of opinion as to what cases of so-called Inference ought, and what ought not, to be regarded as really Inference. And in some instances one is surprised to find that a writer who treats of Inference page after page, and even chapter after chapter, never offers a definition of it.

Perhaps no logician would refuse to admit with Jevons that we "infer whenever we draw one truth from another truth, or pass from one proposition to another". But this is vague, for what is meant by *drawing* one proposition from another, or *passing from* one proposition to another? And what is the distinction between *one and another* in the case of truths and propositions? "Logicians," says Jevons, "are not agreed exactly as to what we may include under the name Inference, and what not. All would allow that there is an act of inference when we see drops of water on the ground and believe that it has rained. . . . Few or none would say that there is an act of inference in passing from 'The Duke of Cambridge is the Commander-in-Chief' (1) to 'The Commander-in-Chief is the Duke of Cambridge' (2)."

The latter statement seems too sweeping. The process from (1) to (2) is a quite fair and unstrained case of passing from *S is P* to *P is S;* and the only ground on which it could be denied to be Inference by those who admit that Conversion can be Inference, is the ground of its obviousness and simplicity. But whether or not a given Conversion seems to any given mind or minds to be easy and obvious, depends entirely on accidents of development and circum-

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stances. The simple and the complicated all have in common just that kind and degree of relation between 'Inference' and 'Inferend' in virtue of which (if at all) they are entitled to the name of Inference.

When it is said "All would allow that there is an act of inference when we see drops of water on the ground and believe that it has rained," it is clear that either the 'Inference' here is not fully expressed, or there is no logical Inference at all. The 'Inference' as given would be of the form

A is B
Therefore C is D,

and an inference of such a form is conclusive, if at all, from its 'Matter,' not from its 'Form'—*i.e.*, it is elliptically expressed, and, if cogent, admits of being expanded so as to be 'formally' valid. The above 'Inference' for instance may be expanded as follows:—

(1) The wetness of the ground is a present fact;
Every present fact has a cause;
Therefore the wetness of the ground has a cause.

(2) The cause of wetness on the ground must be either rain, or flood, or a water-cart, or etc.
But in this case there has been no flood, no water-cart, no etc.
Therefore in this case the cause is rain.

Mr. Bosanquet points out that there can be no inference except where there is "connexion of content"—"an identity or universal which acts as a bridge from one case or relation to another"—that "*ultimately* the condition of inference is always a system".

This doctrine is full of suggestion, but there is some difficulty in being sure exactly what is meant by Identity and by System (and upon this a good deal seems to depend), and also in showing *in what way* system is a condition of inference—*what* the reference to system is which *all* Logical Inference has in common and by which it is distinguished from all that is not Inference. Is it possible to reach an analysis of Logical Inference which will furnish (1) an explicit definition, and a test by which to recognise cases when they occur; and also (2) some justification for the various applications that have been currently made of the name?

*Some* connexion of content there must certainly be, for the simplest judgment—it does not, however, seem that either for judgment or for inference, a so-called necessary connexion of content (attributes) is required—such, *e.g.*, as obtains between *equality of sides* and *equality of angles* in a triangle. This kind of connexion is indeed required for

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'Inductive' Inference (Inference to fresh cases). But, given such a connexion, it is only because the Subject which is A is also B,—because wherever there is A-ness, in that individual or existential identity there is also B-ness—that it can be inferred that any fresh case of A is also B—the *necessity* of the connexion entails its universality (in the sense that there is no exception to it). And wherever similar reference of content to an 'identity' in the sense of individual identity (*cf. Essentials of Logic*, p. 140) can be made, inference can be based upon it, as in the case of Thackeray's story (*op. cit.*, pp. 140, 141) of the Abbé. Certainty of reference (however guaranteed) to the same Subject or Subjects (the same articulated *system*) is all that is needed.

The Abbé's first penitent was a murderer;
The Count was the Abbé's first penitent;

give the conclusion—

Therefore the Count is a murderer,

with as absolute cogency as if the connexion of Subject and Predicate in both Premisses were a self-evident law of nature.

Mr. Bosanquet asks whether this is really an inference, and seems to answer that it *is*, but that it has only just escaped *not* being so. He appears to suggest that if the terms had been ambiguous, its claim to be an inference would have been clearer. But in that case, surely, there would have been no valid inference at all—no following of conclusion from premisses.

On p. 139 he speaks of "producing a straight line" as the "simplest conceivable case of inference". But the inference here is not in the production of the line, but in the preliminary thought:—

If I draw so and so, I shall produce a straight line;
I shall draw so and so;
Therefore I shall produce a straight line.

If the production of a straight line is an inference, is not every case of making a thing after a pattern, and indeed every purposed act, an inference? There seems a want of distinction here between actual physical construction directed by a mental ideal, and the mental construction of a "system" which takes place in the mind of a hearer who puts together premisses successively given so as to form a whole.

What we must demand, and what we believe we find in every Inference *that we accept as valid*, is that the truth of the conclusion follows from the truth of the premisses—if the latter are true, the former must be true—while at the



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same time the conclusion cannot be a simple repetition, it must, in some sense, go beyond the premisses.

Let us examine this in the case of a proposition stated in the barest symbolic way, *e.g.*,

*S is P.*

From *S is P*, it has been said, we can 'infer'

*P is S.*

The explanation of this appears to be as follows:—

*S is P* gives us, as the pre-requisite of its truth, a whole so articulated that S, P, not-S, not-P, are definitely related. If we believe that *S is P*, we know that what is referred to in that assertion is a whole which is both S and P, and which (extensionally) excludes both not-P and not-S. The relation *S is P* is necessarily conjoined with the relations *not-P is not-S*, *P is S*, etc., in any subject of attributes (or of predication) that can be referred to by *S is P*. We have here the System, Articulation, Reciprocity of Relation, which is a postulate of Assertion and of Inference. *S is P* is so related to *P is S*, that though there is some difference between them, if one is true the other is.

It is the one identical articulated thing or subject, the one same 'System' which justifies both *S is P* (1) and *P is S* (2). But the content or intension of (1) differs (however slightly) from that of (2), though the application, the existential reference, of the two, is identical. The perceived relation of both propositions to one whole, on the articulation of which the truth of both depends, is the condition for 'inferring' the one from the other.

Similar considerations apply in the case of Obversion, Contraposition, Inversion, etc.

I think it is here (in the case of Conversion, Contraposition, etc.) that the so-called Laws of Identity and Contradiction expressed as

A is A,

A is not non-A,

find their only possible true and appropriate application.

A is A (meaning *A intensionally taken is nothing but A*) and *A is not non-A* (meaning *A intensionally taken excludes everything but A*) furnish the laws or schema for the construction of every whole which is given by a categorical proposition of the form *S is P*, as far as the intensional relation between S and P goes.

Not, of course, that in any significant proposition the intensional aspect alone can be considered. For the possibility of an assertion of the form *S is P*, another Law is wanted in which both the intensional and the 'extensional'

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or existential aspect of the terms is taken account of. In the Laws of Identity and Contradiction, as above expressed, the real meaning must be understood to be elliptically or epigrammatically given, although the interpretation may refer wholly to the intensional aspect of a term.

Taken 'intensionally' *A* is never *B*. But yet we can and do say *A is B*; and *A is B* may be true, unless B means *the absence of A*.

*Non-A*, like so many other logical terms, is ambiguous, meaning (1) absence of A-ness, (2) presence of some quality other than A-ness. It is in the latter sense that we have to understand it in all propositions of the form *A is B*.

If we are considering solely the intensional aspect of our terms we can never say

A is B.

But if we consider *both* aspects, it is of course a simple, natural and absolutely indispensable way of expressing our thought. And admitting these positions, it seems to follow inevitably that the *identity* indicated by the affirmative copula is an existential ('extensional') identity. In as far as extension refers simply to quantity, it is attributive or intensional; it is only in as far as it is existential—referring to Thatness as opposed to Whatness—that it is antithetical to Intension. It seems hard to dispute this; and no doubt confusion has arisen from the fact that difference of quantity or number is bound up with otherness of life or existence. But that they are not one and the same appears from the consideration that there may be precise quantitative similarity between two things or groups that are existentially or extensionally separate and distinct. Any one ounce of pure water, *e.g.*, is exactly similar quantitatively to any other ounce, yet no one would say that the one *is* the other. And while necessity of connexion between attributes is requisite for 'Induction,' absolute unity of existential reference is necessary too, and is also indispensable for Eduction and Deduction—as it is necessary for, and common to, all affirmative judgment. As long as we are in the region of articulate and significant judgment, we are in a region in which existential or extensional unity has to be distinguished from Intensional Unity = Similarity, Resemblance, or Likeness. The dictum that there is no Identity without Difference, has even more depth of meaning than has commonly been attributed to it. It means not only that qualitative likeness however exact can only be perceived in qualitative difference, but also that existential oneness is unmeaning except as contrasted with existential otherness—and, further, that

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existential oneness can only be perceived or expressed by help of qualitative or intensional diversity. I am to-day the same person (existentially) that I was yesterday—but the same in intensional difference. This new shilling is qualitatively exactly similar to that, this ounce of clear water to that—they are in themselves "indistinguishable"—but they must occupy different spaces, or different vessels, etc., in order to be, and to be known as, two. And in every case of any assertion of likeness or identity, *e.g.*, S is P—A is like B—we must have intensional difference between Subject and Predicate, so that *intensionally* or *qualitatively* S is *not* P—existential or extensional unity, so that 'extensionally' S *is* P; and for full comprehension of the force of the assertion, so that we can draw inferences from it, distinction (extensional and intensional), of S from not-S, and of P from not-P. That the oneness of extension or existence is present and important is further illustrated by a consideration of Inference by Added Determinants. When we can say that

If R is Q, therefore XR is Q, etc.,

it is because the extensional reference remains fixed.

It seems to me that these considerations clear up the difficulty that has lain at the root of the intermittent logical controversy as to Predication and Existence. As Mr. Bosanquet suggests (in his *Essentials of Logic*, p. 67, and other passages) we may in judging refer to *different kinds* of Reality (Existence). One kind or part of Reality is distinguished from another only qualitatively—though we must in judging always refer to Reality (or Existence) we may refer to different kinds (or parts) of it. The difference can only be qualitative, and can only be indicated by differences of 'intensional' force in the words used. Hence it seems that in his view propositions can only differ qualitatively or intensionally.

It does indeed seem evident beyond the need of being pointed out, that there cannot be, and that we cannot think or speak of, quality without 'existence,' *Whatness* that has no *Thatness*. Existential or 'extensional' implication there must always be—we can only go wrong by attributing a *wrong kind—i.e.*, by putting together wrong ideas, so as to assert or imply a wrong combination of qualities.

Every supposed implication of 'extension' or 'existence' in propositions, beyond that which is necessarily and in all cases bound up with 'intension,' is a matter of context or attribution, and therefore *intensional* in character. What kind, what part, what 'universe,' of existence is referred to, can

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only be *intensionally* determined (taking *intension* in Dr. Keynes's sense, as covering the whole connotation-aspect of terms—*cf. Formal Logic*, third edition, § 13).

Where we have Hypotheticals, of which the Consequent is not a simple Immediate Inference from the Antecedent taken alone (as, *e.g.*, If M is P, not-P is not-M), they may be of the form *If A is B, C is B*, where the inference involved is a single Mediate Inference, one premiss (C is A) being suppressed; or of the form *If A is B, R is Q*, where more than one premiss is unexpressed, and where, if the whole connexion were set out, there would be a plurality of Mediate Inferences, each one having a term in common with that which precedes, thus ensuring unity of existential reference.

It may be pointed out that the view above given of Immediate Inferences applies easily and naturally to what have been called 'Relative' Inferences, such as

A is equal to B,
Therefore B is equal to A;
Philip is father of Alexander,
Therefore Alexander is son of Philip.

Whatever can be said of the Inference

S is P therefore P is S

applies here. The simple 'system' of A, equal to B, Philip, father of Alexander, etc., applies here, as everywhere; but is traversed by another 'system' in which A, B, Philip, Alexander, appear as the prominent factors; and reference to this second 'system' enables a whole fresh set of inferences to be drawn.

The question has been asked whether there is any 'inference' in passing from, *e.g.*, *Victoria is Queen of England* to *Victoria is England's Queen*. Probably most logicians would answer this question in the negative and would say that the change is "merely verbal". But a verbal change is still a change; and I think that there *is* Inference here, although certainly it is not formal Eduction (Immediate Inference). The 'Inference' may be set out as a Mediate Inference in this way:—

Victoria is Queen of England,
The Queen of England is England's Queen,
Therefore Victoria is England's Queen.

No doubt it always seems futile and perhaps puerile to set out at length what most, or even all, people know without telling; but whether an equivalence is generally known or not, is a historical circumstance and not a logical truth; and no doubt there may be, and are, cases in which even such a

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simple equivalence as this, is not known—*e.g.*, in the case of a child, or a foreigner learning the language (just as there may be cases in which the most complicated equivalences are as familiar as A, B, C). A German student of English, for instance, might have to arrive at the conclusion Valour is Bravery by means of the two premisses:—

Valour is *Tapferkeit*,
Bravery is *Tapferkeit*.

In the traditional scheme of Immediate Inferences (and of Syllogism) as set forth in logical text-books, the S, not-S, P, not-P system (as given by the *term*-relations merely in *S is P*, *S is not-P*), is complicated by a consideration of class-relations. In *All R is some Q*, *All R* is one term (S), and *some Q* is the other (P)—and as far as the mere relation between Subject and Predicate goes (if Subject, Predicate, Copula, exhaust the proposition), the proposition may be represented by

*S is P*.

But we have here, besides, reference to the relation between the *classes* R and Q.

S is P therefore P is S,

and since S means *All R* and P means *some Q* (*some* indeterminate) we think of the Subject (S) as applying to all members of the class R, and the Predicate (P) as applying to such members of the class Q as compose the class R. As far as Subject and Predicate go, the relation between them is perfectly simple, determinate, and reciprocal. But the relation between the classes R and Q as given in *All R is Q*, is indeterminate, and we do not know without further information whether it is reciprocal or not. And the indeterminateness of the class-relations involved is still more evident in Some R is Q, Some R is not Q. While the relations between the two terms—Subject and Predicate—of a proposition are but two—complete coincidence, or reciprocal exclusion—those possible between two classes are five-fold, including in addition to complete (1) coincidence, or (2) exclusion, (3) intersection of R and Q, (4) inclusion of R within Q, (5) inclusion of Q within R.

Quantification of the Predicate seems to me to aim rather at forcing the propositional form to express determinately the relations of the classes concerned, as well as of the Subject and Predicate (S and P), than at any disregard of the intensional or connotation aspect of terms as compared with their 'extension'.

The same complication of 'systems' is found in the traditional treatment of Syllogism as in that of Immediate

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Inference. Not that there is any fault to be found with it—it simply follows actual thought and usage. If general terms are used in propositions, and 'Extension' is emphasised in the Subject and 'Intension' in the Predicate, the current forms seem to answer the current needs as well as the nature of the case permits. All that seems desirable is that the different elements concerned should be distinguished and taken account of.

What is essential to the theory of Mediate Inference (as also to the theories of Predication and Immediate Inference) is the affirmative or negative relation of *terms* in the propositions concerned.

The two premisses of a Categorical Syllogism,

S is M,
M is P,

can only be predicated of an articulated thing or 'system' which is characterised as having M and P and S so occurring and connected in it that either one of these determinations may be predicated of any other, or of the whole. S, M and P have a common reference; and we may emphasise the connexion of *S with M* or of *M with P* or of *S with P*. Since *S with M* and *M with P* have already been emphasised in the premisses which gave us the connected content S, M, P, there remains *S with P*, the assertion of which requires a fresh synthesis and elimination, and which expresses a part or aspect of the articulation which has not been emphasised before.

Similarly with 'Relative' arguments, such as—

A is to left of B,
B is to left of C,
Therefore, A is to left of C.

The two premisses can only be true of a system or construction in which the reciprocal relations of A, B, and C are all definite—in which, therefore, there is included the relation between A and C.

In these and other cases we may consider (1) the relation of parts within the whole, regarding that whole as a *given* 'system'; or (2) we may suppose the whole to be mentally envisaged or 'constructed' by the hearer or reader who makes acquaintance first with one premiss then with the other; or (3) we may postulate a seeker with a more or less vague idea of the whole, who progresses, in his search, to more and more definite and detailed knowledge; or (4) we may suppose the whole to be analysed and the parts set out successively by the speaker or writer, who starts with the 'system' before him and aims at conveying his knowledge of it discursively to others.

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It is from the first of these points of view that I am at present attempting to consider the matter, since from this point of view the relation of premisses to conclusion is regarded as simply a logical or epistemological relation, while in the other cases the point of view is psychological and historical.

The account of Inference here maintained, furnishes, it seems to me, a test by which to determine what is, and what is not, Valid Inference in any given case. From it the following definition of Logical Inference may be gathered: "If any proposition[1] is necessarily true provided an other proposition (or pair of propositions) is true; then the former is an inference from the latter". (By an *other* proposition is meant a proposition which, as verbally expressed, differs in some respects from the *one*.) This statement is different from Mr. Bosanquet's only in giving a more definite, and in some respects wider, meaning than he does, to *Newness*, to *going beyond the premisses*. I define an *other* proposition as "a proposition which, as verbally expressed, differs from the one," because I believe that *some* difference of thought must correspond to *every* difference of expression—it may be only a slight difference, it may even have reference merely to the equivalence of linguistic forms; but, however slight, if it is a difference of thought at all, it is enough to furnish an inference. If there were *no* thought-difference, why should we use different words?

If this definition is accepted, it is seen to cover all those cases of transition from one proposition (or propositions) to another which have, by logical writers, been classed as cases of Valid Inference, with the one exception of Induction, understood as a passage from Particulars to General (or to other Particulars). This is indeed unhesitatingly rejected from the category of Inference by Mansel, and most other 'Formal' logicians. "Logic," says Mansel, "recognises no Inference that is not necessitated by the Laws of Thought: and therefore it must be presumed that the Induction is *perfect*, *i.e.*, that the Individuals mentioned are in reality the whole

[1] I should wish to use the word *Proposition* to include all cases of explicitly formulated judgment. No doubt the vast majority of judgments which are recorded or communicated are expressed in words; but for explicit formulation of a judgment words are not indispensable; much less is it indispensable that the judgment should be actually spoken or written; all that is essential is, that it should be (as Mr. Benecke says) "mentally expressed". For reasons in support of using *Proposition* rather than *Judgment* in logical discussion *cf.* Mr. Benecke's article "On the Logical Subject of the Proposition" in MIND for January, 1898, pp. 34-37.

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constituents of the species, before the Inductive Inference can come in any way within the province of the logician."

"Any attempt to reduce Induction to Syllogism, in the strict sense of the term, must commence by inverting the whole operation; stating as a preliminary assumption that which is really the conclusion of the Inductive process" (Mansel's *Aldrich*, pp. 220, 222-223).

Understanding Induction in the sense in which Mansel understands it—the only sense, indeed, in which it can be understood if regarded as Logical Inference, but distinguished from Deduction—this seems indisputable. And it seems tolerably clear that those who have regarded Imperfect Induction as a case of genuine logical inference, have not clearly distinguished between the actual psychological process from Particulars to General, which involves Hypothesis, and its logical justification. In

This A is B,
Therefore All A's are B,

there is certainly *Newness* in the conclusion; but there is no justification of conclusion by premiss.

When Sigwart defines Inference thus, "Every inference involves the belief that one judgment (the conclusion or inferred proposition) is true because one or more other judgments (the premisses) are true" (*Logic*, tr., i., 327), we may observe (1) that the whole force of the definition depends on what is meant by *other*, and (2) that it is more appropriate to Inference considered as a merely psychological process of thought than to logical or valid Inference. The logical process is of course psychological, but the converse is not true; psychological inference may be entirely illogical; hence it seems desirable to fix attention rather on the logical relations by which thought *ought* to be controlled.

When Dr. Venn, discussing the question whether or not there is Inference in Syllogism, concludes that "if there be any real step of reasoning involved in the process, then we ought to be able to imagine a mind which has accepted the two premisses and which has *not* yet accepted the conclusion," so that "if we could, so to say, photograph it instantaneously, we should find it in the possession of premisses but *not* in possession of the conclusion" (*Empirical Logic*, p. 375), we have the whole question removed to non-logical ground, and looked at from the point of view of a hearer or reader who happens to apprehend successively the premisses of an argument. Even so, however, the account seems rather fallacious—for while, and in as far as, the conclusion is not

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*seen* to be included in the premisses, it is not *those* premisses which yield the conclusion. As Mr. Bosanquet (I think) remarks (speaking also from the point of view of audience), "If we say that our premisses taken together alter each other, then we must say that it is the premisses *as so altered* which give us the conclusion" (*cf.* also Stout, *Analytic Psychology*, ii., 71).

A great deal of controversy and divergence of opinion may be explained, and a great deal of difficulty cleared away, in the theories both of Judgment (Proposition) and of Inference by the consideration that different writers have treated the matter from different points of view. Some have been concerned with the properly logical or epistemological aspect; others have treated it from the point of view of speaker, or hearer, or seeker. The received Conceptualist account, *e.g.*, of Judgment—that it consists in putting two ideas together—is of course from the point of view of hearer. Those who have found in *newness* the most prominent element in inference, would seem to have taken a similar standpoint, and to have spoken as for a learner (listener or seeker).

Those who have insisted that in Formal (or Logical or Valid) Inference there is "nothing new" in the conclusion, seem to speak from the position of teacher or speaker, as also do those who say (with Brentano, etc.) that in perceiving *SP* and in judging that *S is P*, the very same object is before the mind. Either of the psychological aspects taken alone gives rise to a one-sided view—it is only when propositions and inferences are regarded as knowledgable relations, that an adequate account is possible.

One further point I should like just to refer to, and that is, that on the view of Inference here taken, there does not seem to be any antagonism, or even incoherence, between the cases of Logical Inference currently so called and that 'dialectic' method with which we have learnt to associate the name of Hegel.

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# V.—MANDEVILLE'S PLACE IN ENGLISH THOUGHT.

By Norman Wilde.

In these days of minute historical research it is a rather singular fact that so little attention has been given to one of the best hated writers of the last century. The name of Mandeville occurs in almost every history of his times, but of his real thought there appears to be very little detailed knowledge. He is dismissed with a few sentences, and the significance of his work for the development of English ethics receives but scanty recognition. It is true that he was not a great thinker, yet, nevertheless, he had a marked influence on the thought of the eighteenth century, and one which cannot be ignored by any one who would understand the moving force in the ethical controversies of that time.[1]

Among his contemporaries Mandeville was a dreaded though derided figure. No author of repute accepted his doctrines, and he founded no school, yet for almost a half-century every writer on morals found it necessary to settle his account with the author of *The Fable of the Bees*. His spectre seemed to haunt the minds of the eighteenth century moralists, as that of Hobbes did the thought of the preceding age. He is ever in the background, a figure it is wise to shun, but impossible to ignore. He was regarded as an enemy to morality and religion, and even charged with being "a friend to the Pretender, and diligent, for his sake, in labouring to subvert and ruin our constitution, under a spe-

[1] The most elaborate account of Mandeville's work is that of Paul Goldbach, *Bernard de Mandeville's Bienenfabel*, Halle, 1886. This dissertation contains the English text of the original *Fable* and valuable historical and bibliographical information, but gives no satisfactory discussion of Mandeville's ethical and political theories. Other accounts are those of Schlosser, *Geschichte des XVIII. Jahrhunderts*, i., p. 406; Hettner, *Literaturgeschichte des XVIII. Jahrhunderts*, i., p. 206; Leslie Stephen, *Hist. of English Thought*, ii., p. 83; Jodl, *Geschichte der Ethik*, i., p. 186; Vorländer, *Geschichte der phil. Moral-, Rechts- und Staats-Lehre*, p. 425; J. M. Robertson, *The Fable of the Bees*, in *Essays towards a Critical Method*. This last is rather a partisan defence of Mandeville, but gives a good view of the controversies roused by him.

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cious pretence of defending it". "This profligate author of the fable is not only an auxiliary to Catiline in opposition to faith, but has taken upon him to tear up the very foundations of moral virtue, and establish vice in its room. The best physician in the world did never labour more to purge the natural body of bad qualities than this bumble-bee has done to purge the body-politic of good ones."[1] His writings were characterised by the Grand Jury of Middlesex as "works of darkness" undertaken to establish "a general libertinism".[2] Even modern methods of journalistic advertising seem to have been anticipated in order to blacken his fame. A story went the rounds of the press to the effect that "on Friday evening, the 1st instant, a gentleman, well dressed, appeared at the bonfire before St. James's Gate, who declared himself the author of a book, intituled *The Fable of the Bees;* and that he was sorry for writing the same: and recollecting his former promise, pronounced these words: 'I commit my book to the flames'; and threw it in accordingly".[3] A few days later this paragraph appeared affixed to an announcement of a refutation of Mandeville's book by the Rev. Alexander Innes, with the express statement that the burning was due to the effect of the reverend gentleman's arguments. The story was pure fiction, but it illustrates very well the bitterness aroused in theological circles by Mandeville's theories.

Among professed moralists our author fared somewhat better than with the popular writers, yet in no case was his merit fully recognised. The truth of his theory was presented in too paradoxical a form to obtain a fair hearing. The brutal frankness of his style was repellent to those accustomed to a nobler view of human nature. Even the high-minded Berkeley[4] failed to do justice to this "Minute Philosopher" because of the very nobleness of his own nature. The world of selfish greed depicted in the fable was one beyond the sympathies of the good Bishop of Cloyne. The Presbyterian Hutcheson,[5] also, was unable to find the truth

[1] *The Fable of the Bees*, pp. 241, 247. The quotations are from a "Letter to Lord C——," published in the *London Journal* of 27th July, 1723, and reprinted by Mandeville in his *Vindication*.

[2] *Ibid.*, p. 240. [3] *Ibid.*, p. 276, Preface to part ii.

[4] *Alciphron: or The Minute Philosopher*. The second dialogue is devoted to Mandeville's doctrines, but considers only their superficial aspects.

[5] *Thoughts on Laughter, and Observations on 'The Fable of the Bees'*; also in his *Inquiry into the Original of our Ideas of Beauty and Virtue*.

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in this realistic picture of London life. Even Adam Smith,[1] more moderate in the terms of his rejection, finds "the notions of this author" "in almost every respect erroneous," although "there are, however, some appearances in human nature which, when viewed in a certain manner, seem at first sight to favour them". In our own century abuse of him has largely subsided, not from a juster conception of his work, but from ignorance of it. Hence it is the object of this paper to determine briefly the historical conditions amidst which Mandeville wrote, in order that we may the better estimate the value of that which he accomplished.

Bernard Mandeville was of French descent, but born at Dordrecht in Holland about 1670. He studied at the Erasmus school in Rotterdam, and at Leyden, where he took his degree in medicine, his thesis being a *Disputatio de chylosa vitiata*. The remainder of his life was spent in London, where he died in 1733. These few facts are all we know of his life from external sources.[2] The rest of our information comes from his own writings. Schlosser[3] hints that his life was as licentious as his doctrine, but there is no evidence for such an accusation save the free tone of his books and the random abuse of his enemies. Yet we have no proof to the contrary, and his descriptions of vice point to a minute personal knowledge of its details, accompanied by no apparent distaste for its practice. He was probably a man of the world, with all which that implied during the age of Anne and the early Georges.

The work on which his fame rests appeared in its first form probably about 1705. This was *The Grumbling Hive: or, Knaves Turned Honest.* It was published first as a sixpenny pamphlet, but was soon pirated and cried about the streets for a halfpenny. It consisted of over 400 doggerel verses, with no pretension to poetic merit, but of considerable rude vigour and effective wit. As Prof.

[1] *Theory of Moral Sentiments*, part vii., sec. ii., ch. i.; sec. iii., ch. i. It is impossible to agree with Robertson's indiscriminate abuse of Smith on this point (*op. cit.*, p. 216). Smith rejects Mandeville's crude theory of selfishness, but admits that it has probably "arisen from some confused misapprehension of the system of sympathy" (part vii., sec. iii., ch. i.). His whole account is fairly appreciative of Mandeville's idea.

[2] Goldbach and Robertson give the best accounts of Mandeville's life, but they differ in some details. Thus Goldbach gives the doctor's thesis as a *Disputatio philosophica de brutorum operationibus*, 1689. He also gives the date of the original fable as 1706, but the pirated reprint is dated 1705 (*cf.* Robertson, p. 206).

[3] *Geschichte der XVIII. Jh.*, i., 408.

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Minto[1] has pointed out, "it was in fact a political *jeu d'esprit*, full of the impartial mockery that might be expected from a humorous foreigner, and with as much ethical theory underlying it as might be expected from a highly educated man in an age of active ethical speculation". And, like most political pamphlets, this one caused but passing comment. No copy of the original fable is now known to exist. Its notoriety dates from 1714, when it was republished with additional essays and notes under the title of *The Fable of the Bees, or Private Vices, Public Benefits*. The essays consisted of an Introduction and "An Enquiry into the Origin of Moral Virtue," besides a preface giving an interesting history of the work. In 1723 a second edition was issued with two additional essays, "On Charity and Charity Schools," and "A Search into the Nature of Society". Two new notes or "Remarks" were also introduced. The outcry against his doctrines had now assumed such definite shape that Mandeville was constrained to answer it, and we have the third edition of 1724 with a "Vindication of the Book from the Aspersions contained in a Presentment of the Grand Jury of Middlesex, and an Abusive Letter to Lord C——." The "Presentment" and the "Letter" are also given entire. Three other editions followed before the death of the author, but meanwhile in 1729 he published *The Fable of the Bees*, part ii., consisting of six dialogues between Horatio, Cleomenes and (in the first only) Fulvia. The second separate edition of this second part appeared in 1773, but after this both parts were always published together. Such is the remarkable history of this unpretentious and unsystematic book, and it indicates sufficiently the intense excitement produced by it that eight editions of it were called for before the author's death.[2] There was

[1] *Encyclopædia Britannica*, art. "Mandeville".

[2] I have given this extended history of the work because in almost every account of Mandeville there are errors of date and edition. Schlosser, Hettner, Leslie Stephen, Fraser (in his edition of Berkeley, vol. ii.), McCulloch (*Literature of Pol. Econ.*), and even Sidgwick (*Hist. of Ethics*), give conflicting accounts. Robertson is the only historian I have found perfectly accurate.

I subjoin the bibliography of Mandeville's writings given by Goldbach:—

*Oratio de medicina*, Rot., 1685. *Disputatio philosophica de brutorum operationibus*, Lugdun. Batav., 1689. *Æsop dressed, or a Collection of Fables*, Lond., 1704. *Typhon, in Verse*, 1704. *The Planter's Charity, a Poem*, 1704. *The Grumbling Hive*, Lond., 1705. *The Virgin Unmasked, or Female Dialogues*, Lond., 1709, 1724, 1731. *Treatise of the Hypochondriac and Hysteric Diseases*, Lond., 1710, 1711, 1715, 1730. *The Fable of the Bees*, Lond., 1714, 1723, 1724, 1725, 1728, 1732. *Free Thoughts on Religion, the Church and National Happiness*, Lond., 1720, 1723, 1729. *Enquiry into the Causes of the Frequent Executions at*

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evidently an element of disturbing truth in this satire upon human nature. Partial and distorted its view certainly was, but it was only the natural reaction against the optimism of Shaftesbury. The pendulum would never have swung so far had it not been drawn equally far in the opposite direction.

Mandeville's character can best be described as cynical. He was a sceptic and a satirist, but he was wholly without the severer qualities which often go far to justify these negative characteristics. His polemic was not based upon deep moral earnestness. His probing of the diseased places in human nature was not undertaken in the spirit of the physician, but in that of the idle experimenter. He stands outside society, analysing its weaknesses, exposing its shams, but without sympathy with its failings. He might be a Voltaire in his destructive criticism, but he lacks the great Frenchman's terrible earnestness of purpose. Helvétius is his true descendant, although even he is more constructive and serious than his English original.[1] Mandeville cannot be treated as a systematic writer. It is idle to point out inconsistencies in his theories, for his strength does not depend on his consistency, but on his wit. Any theory is good enough for him if it will afford him a weapon against some phase of current morality and religion. He is a philosophical free lance, careless under what banner he fights so long as it leads him to the accomplishment of his own immediate ends. Human nature is selfish, society is corrupt, and its corruptions are the foundation of its civilisation. To illustrate this thesis is the purpose of all his work, not with the design of devising any remedy therefor, but merely for the pleasure of unmasking pretended benevolence and proving that all men are at heart alike. In this his work is the psychological parallel to Gay's *Beggars' Opera*, which appeared in 1728. "Through the whole piece you may observe such a similitude of manners in high and low life, that it is difficult to determine whether (in the fashionable vices) the fine gentlemen imitate the gentlemen of the road, or the gentlemen of

*Tyburn*, Lond., 1725. *The Fable of the Bees*, part ii., Lond., 1729, 1733. *Enquiry into the Origin of Honour and the Usefulness of Christianity in War*, Lond., 1732. *A Letter to Dion* [Berkeley], Lond., 1732. Other letters are ascribed to him. *A Conference about Whoring*, Lond., 1725. *The True Meaning of the Fable of the Bees*, 1726. *The World Unmasked, or the Philosopher the Greatest Cheat*, Lond., 1736. *A Modest Defence of Public Stews*, 1740. (The first edition of this must have appeared in 172–.)

[1] Buckle says of Helvétius: "Many of the views in his great work on the Mind are drawn from Mandeville" (*Hist. of Civilisation*, chap. xii.).

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the road the fine gentlemen."[1] It was a society such as this that caused the cynical laughter of Mandeville.

We can distinguish two related causes for Mandeville's work. In the first place it was a protest against the reform movement of the day. The period of the English Revolution was not only marked by reforms in politics, but also by a distinct change in the moral tone of social life. The reaction against the excesses of the Restoration was setting in, and the moral sentiment of the great body of the English people was again making itself felt. William of Orange was by no means a model of private virtue, but he and his wife lent the machinery of government towards suppressing the most open displays of vice, and gave personal directions to judges to make existing laws effective. Queen Anne continued the work, and the theatre was brought to some degree of decency. Attempts were made to improve and educate the poor, and charity schools were founded. Laws were enacted against gaming and cock-spitting, and the more brutal amusements of all kinds were discouraged. Life began to assume some of the refinements of modern times. In this connexion it is enough to mention the names of Addison and Steele, and the foundation of the moral journals. The effect of this steady movement for reform was to call out a corresponding protest from the more corrupt elements of society. The men of wit and fashion were loud in their ridicule of this attempt to make morality popular, nor were they slow to assail the motives of their opponents. Benevolence was declared to be a sham, and interest in the education of the poor only a pretext to cover some scheme for self-advancement. It was this fashionable opposition of which Mandeville was the mouthpiece.

But while this was the general condition which gave rise to his work, there was a special reason which determined the form which it should assume. This was the optimism of the reformers, more especially Shaftesbury. It was in direct opposition to the large and generous view of human nature held by the author of the *Characteristics*, that Mandeville revived the egoism of Hobbes. *The Grumbling Hive* was published before Shaftesbury's main works appeared, but all the later additions are in express opposition to his theory of the social nature of man. No better illustration of the relation between life and philosophy can be found than in the writings of these English moralists. Each described humanity according to the example found in his

[1] Epilogue to the *Beggars' Opera*.

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own life. The theory of each can be constructed from the elements of his character. The practical English thinker is not deeply moved by logic,—he reverences the facts, and the facts most accessible to him are those of his own nature. Hence the history of English ethics becomes largely a history of the social life of the people as interpreted by the representatives of its different phases. In the case before us Shaftesbury represents one phase, Mandeville another. Each paints human nature as he sees it in himself: the one large-hearted, generous, full of enthusiasm for the beautiful and the good; the other narrow, selfish, and without ideals. Representing as they did opposite sides of human nature, each failed to understand the other, and the theories of both remained inadequate to the explanation of life in its fulness.

There are two points in Mandeville's writings that demand attention—his theory of the origin of society, and what I shall call his inversion of the teleological argument. The second of these is the more interesting, but the first has some historic importance as the forerunner of the later unhistorical theories of the eighteenth century. Mandeville makes no attempt to harmonise his views on these two points, yet I find no such inconsistencies in his theory as some writers seem to do.[1] He emphasises first one and then another element, but he does not claim for either universal validity.

In his theory of the origin of society, he takes his stand on the psychology of Hobbes. Man is originally and always selfish. "All untaught animals are only solicitous of pleasing themselves, and naturally follow the bent of their own inclinations, without considering the good or harm that, from their being pleased, will accrue to others. This is the reason that, in the wild state of nature, those creatures are fittest to live peaceably together in great numbers that discover the least of understanding, and have the fewest appetites to gratify; and consequently no species of animals is, without the curb of government, less capable of agreeing long together in multitudes than that of man; yet such

[1] Lecky, *Hist. of European Morals*, i., p. 7; Hume, *Essays*, "Of Refinement in the Arts". In the one case, Mandeville is speaking of the bare framework of society, which cannot exist without a certain amount of moral restraint; in the other, he is describing the higher refinements of a complex civilisation. Hume's criticism of the ambiguity contained in Mandeville's use of the term luxury is, of course, quite just, yet we must remember that the latter is making an *ad hominem* argument against a social theory resting on an ascetic conception of virtue.



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are his qualities, whether good or bad I shall not determine, that no creature besides himself can ever be made sociable: but being an extraordinarily selfish and headstrong, as well as cunning animal, however he may be subdued by superior strength, it is impossible by force alone to make him tractable, and receive the improvements he is capable of."[1] This description is almost an exact parallel to that of the *Leviathan*, save that Mandeville puts a little more emphasis on the natural capacity in man to rise out of this state of nature. Hobbes made his theory needlessly repellent by failing to emphasise the natural qualities which made social combination necessary. Whether it rested upon the social or the selfish impulses of human nature, the development of society was equally necessary and natural, and so Hobbes felt it to be, as his doctrine of the laws of nature shows. Human morality and society were just as permanent as human nature itself, but neither more nor less so. The laws of nature were the permanent conditions of life. But in his desire to secure a firm basis for his political absolutism, Hobbes ignored the natural necessity upon which his system is really based, thus giving occasion for the partially justifiable charge of arbitrariness which was so repeatedly brought against him. Mandeville, whose system is really far more arbitrary than his predecessor's, has been warned by previous criticism, and takes care to admit the natural capacity of man for society. Development implies natural capacity. Man has the elements in him from which society has been formed, and, in so far, society and morality are natural to him. But they are natural to him only in the sense that wine is a natural product of grapes. The sociableness of man is the work of nature, "but so is the innate virtue and peculiar aptitude of everything; that grapes are fit to make wine, and barley and water to make other liquors, is the work of Providence; but it is human sagacity that finds out the uses we make of them: all the other capacities of man likewise, as well as his sociableness, are evidently derived from God, who made him: everything therefore that our industry can produce or compass, is originally owing to the Author of our being. But when we speak of the works of nature, to distinguish them from those of art, we mean such as were brought forth without our concurrence. So nature in due season produces peas; but in England you cannot have them green in January, without art and uncommon industry."[2] Society therefore is formed only through the

[1] *Fable of the Bees*, p. 13 (ed. of 1806), "The Origin of Moral Virtue".
[2] *Ibid.*, p. 393.

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intervention of human means, and is a product of art. The distinction here made by the author was one much needed in the thought of his time. Men had been too ready with the term nature and too apt to distinguish it sharply from art. They had not recognised the naturalness of art and human contrivance, and were hence too ready to assert the unreality of the developed. They looked to the beginning rather than the end. Mandeville sees the sense in which the products of art are natural, but the depreciatory implications of the old theories still cling to his account of the artificial nature of society.

The means by which the socialisation of man was effected were praise and blame. The problem before legislators and wise men was to make selfish men believe that their pleasure could best be secured by acting for the good of others than themselves. That is, some universal bribe must be offered to mankind. Unable to give so many real ones as would be necessary, "they were forced to contrive an imaginary one that, as a general equivalent for the trouble of self-denial, should serve on all occasions".[1] They found this in flattery. Human nature was praised in the highest terms. "They extolled the excellency of our nature above other animals, and setting forth with unbounded praises the wonders of our sagacity and vastness of understanding, bestowed a thousand encomiums on the rationality of our souls, by the help of which we were capable of performing the most noble achievements."[2] Men were divided into two classes—the higher, who were the true representatives of the race, and the lower, or those whose nature was more akin to the animal. Naturally the more energetic aspired to be classed with the higher, and scorned to give way to the merely animal part of their natures. Those who were unable to attain to this higher conception of virtue yet found that it was beneficial to themselves for the stronger to do so, for it meant the protection of the weak and the cultivation of the generous virtues by the strong. Hence all classes united in praising virtue, some because they were paid in flattery and self-approval, others because they reaped the substantial benefits of it. The process is going on at the present day in all forms of education. Children are roused to activity by holding up before them an idealised picture of themselves. "Sagacious moralists draw men like angels, in hopes that the pride at least of some will put them upon copying after the beautiful originals which they are represented to be."[3] Thus "the incomparable Sir

[1] *Fable of Bees*, p. 14. [2] *Ibid.*, p. 14. [3] *Ibid.*, p. 19.

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Richard Steele, in the usual elegance of his easy style, dwells on the praises of his sublime species,"[1] but it is impossible not to be reminded of the tricks of wise nurses as they praise the feeble efforts of their charges. Boys are told "that all fine gentlemen do as they are bid, and that none but beggar boys are rude or dirty their clothes,"[2] until presently they feel and act as men. The process was the same in the origin of society. "The moral virtues are the political offspring which flattery begot upon pride."[3]

The second point in Mandeville's system is what I have called his inversion of the teleological argument. It is indicated in the secondary title of his book,—private vices are public benefits. Apparently this thesis is the reverse of the theory we have just considered. Heretofore he has implied that the *virtues* are useful, and for this reason have been fostered by wise men and legislators. Now he attempts to show that the *vices* of mankind are the useful forces in society, without which it could not have reached its present prosperous state. The contradiction is only apparent, for the two propositions are not universal. He admits readily enough that the virtues, on the whole, express the happiest conditions of society, but contends that virtue cannot be a universal law without involving the destruction of civilisation. That is, prosperity depends upon the equal balance of virtue and vice; the complete supremacy of one or the other would destroy it.

Yet, while there is no necessary contradiction between the two theories, Mandeville practically abandons the earlier and more artificial one. After the "Enquiry into the Origin of Moral Virtue" we hear very little of the function of praise and blame in the formation of society, although the vanity of man is always recognised as a potent factor in his education. In the "Search into the Nature of Society" and the "Dialogues" we have a theory more nearly resembling that of Hobbes. The evils of a state of nature are there presented as the motive forces which drove men to unite in some sort of civil society. But whereas in his earlier theory Mandeville gave us a more artificial conception of the formation of society, in this later one he is much more rational than Hobbes. The reason was that he had no theory of sovereignty to support. Hobbes' contract hypothesis was only a fiction on which to establish his system of absolutism in the state, and, as such, was a serious defect in his account of the natural genesis of society. Mandeville has no such practical purpose in view, and hence

[1] *Fable of Bees*, p. 19. [2] *Ibid.*, p. 20. [3] *Ibid.*, p. 18.

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can carry out more consistently the fundamental conception of naturalism. His purpose is to show "not only that the good and amiable qualities of man are not those that make him beyond other animals a social creature; but, moreover, that it would be utterly impossible either to raise any multitudes into a populous, rich and flourishing nation, or, when so raised, to keep and maintain them in that condition, without the assistance of what we call evil, both natural and moral".[1] In the first place, there is no evidence that there is any common social nature in man upon which morality and society might be founded; the *pulchrum et honestum* varies with race and climate. And even if there were this social nature, it would tend only to self-deception, since virtue founded on mere inclination has no stability. Self-denial, not self-expression, constitutes virtue. This easy, good, natural way of virtue recommended by Shaftesbury is "good for nothing but to breed drones, and might qualify a man for the stupid enjoyments of a monastic life, or at best a country justice of peace, but would never fit him for labour and assiduity, or stir him up to great achievements and perilous undertakings".[2] But in the second place, the sociableness of man arises, not from a social nature, but from "the multiplicity of his desires and the continual opposition he meets with in his endeavours to gratify them".[3] Innocence is no protection against the natural dangers of the universe; man's skill alone can prolong his life and turn evil into good. Clothing, houses and all the conveniences of civilisation, would never have been produced had there been no physical or moral ills. War itself is a vast incentive to trade, and even its destruction of life is only a necessary repression of population. "Hunger, thirst and nakedness are the first tyrants that force us to stir; afterwards our pride, sloth, sensuality and fickleness are the great patrons that promote all arts and sciences, trades, handicrafts and callings; while the great taskmasters, necessity, avarice, envy and ambition, each in the class that belongs to him, keep the members of the society to their labour, and make them all submit, most of them cheerfully, to the drudgery of their station; kings and princes not excepted."[4]

The theory presented in this essay is only a more serious

[1] *Fable of Bees*, p. 206.

[2] *Ibid.*, p. 211. This is a fling at Shaftesbury for not entering more heartily into public life and putting himself into a position to enforce the reforms he recommended. Shaftesbury's political career extended over but five years.

[3] *Ibid.*, p. 219.

[4] *Ibid.*, 286.

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statement of the idea contained in the original fable of the *Grumbling Hive*, where the disastrous effects of moral reform are exhibited in the case of a prosperous but corrupt hive of bees. Not content with being prosperous they wanted to be virtuous. Jove granted their request, the result being poverty and contentment, with a home in a hollow tree. The interest of the argument, of course, does not lie so much in the positive truth contained in it, though even in this respect it contrasts favourably with much of the exaggerated optimism of the day, but in its *ad hominem* force. Mandeville was bitterly attacked on the ground that he had destroyed the distinction between good and evil. If evil is only the necessary factor in the production of good, it ceases to be evil. Moral distinctions become relative; one man's good is another man's evil; vice is really as useful as virtue. Such a doctrine is a direct encouragement to vice, and prejudicial to all the best interests of society. It was on such grounds that the book was presented by the Grand Jury of Middlesex.

Mandeville's defence is twofold. In the first place, his argument hits the weak place in much of the popular and easy-going morality of the day. The Church was not inclined to take the moral ideal of the Gospels seriously. Self-denial had been tacitly dropped from the list of virtues. Luxury was not deemed at all inconsistent with the highest degree of virtue. Of course, there were multitudes of exceptions, but the general tone of the Church was far from being ascetic or ruggedly virtuous. Mandeville, then, professes to be setting up again the Christian conception of virtue by this proof that a high degree of prosperity can only be reached through a certain degree of moral evil. He is not preaching vice, but setting before man an alternative; either prosperity with vice, or poverty with virtue. Wealth and virtue are not compatible. "When I say that societies cannot be raised to wealth and power, and the top of earthly glory, without vices, I do not think that by so saying I bid men be vicious, any more than I bid them be quarrelsome or covetous, when I affirm that the profession of the law could not be maintained in such numbers and splendour, if there was not abundance of too selfish and litigious people." "If I have shown the way to worldly greatness, I have always, without hesitation, preferred the road that leads to virtue."[1] The Garden of Eden represents perfect innocence, but it represents also perfect ignorance.

[1] *Fable of Bees*, p. 138.

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This appeal from the easy-going conception of virtue is valid against Shaftesbury's system, but that noble writer is more directly attacked in the second application of Mandeville's argument. That is to say, Mandeville's theory that private vices are public benefits is only an extreme development of the teleological argument put forward by Shaftesbury; it is an inverted optimism. In order to prove the presence of divine Mind in the universe, Shaftesbury had exerted all his powers to show that there was no absolute, but only a relative evil, which was, in reality, a necessary part of the world plan. "If the ill of one private system be the good of others; if it makes still to the good of the general system (as when one creature lives by the destruction of another; one thing is generated by the corruption of another; or one planetary system or vortex may swallow up another), then is the ill of that private system no real ill in itself; any more than the pain of breeding teeth is ill, in a system or body which is so constituted that without this occasion of pain it would suffer worse by being defective."[1] This beneficent arrangement of the universe, in which evil is made to work for the good of the larger system, proves the existence of directing Mind, argues Shaftesbury. That is true, admits Mandeville, but, in that case, what right have you to complain of the *means* by which this good is produced? If good depends upon evil, the destruction of evil means the destruction of good, for the end is conditioned by the means. Moreover, does not the end justify the means, and are not the necessary conditions of good covered by the approbation we give the good itself? If there is no absolute evil, there is no absolute good. Thus Shaftesbury's exaggerated optimism is turned upon himself, and by a natural dialectic becomes pessimism. The doctrine that all things are good is equivalent to the theory that there is neither good nor evil.

Mandeville's work is thus a parallel to that of Voltaire. What Voltaire was to the optimism of Leibniz, Mandeville was to that of Shaftesbury—the *Fable of the Bees* is the English equivalent of *Candide*. And as Voltaire failed to enter into the deeper significance of his more illustrious predecessor, so Mandeville fails to do justice to the real value of Shaftesbury's thought. Yet there is a value in the work of both these spirits of negation. The biting satire and startling paradoxes of Mandeville roused the eighteenth century to a more serious consideration of the ethical problem. The

[1] *Characteristics*, vol. ii., p. 20.

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replies to Hobbes had been traditional, almost perfunctory, in their failure to grasp the real truth of his conception. Even Shaftesbury had taken his task too lightly and esteemed human nature too highly: virtue was a luxury for the cultured. It was owing to Mandeville and the spirit which he represented that the abstract benevolence of Shaftesbury was tempered by the rational self-love of later theory.

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## VI.—THE DIALECTICAL METHOD. (II.)

By Prof. E. B. McGilvary.

Returning now from the remarks to the text of the work, with the third paragraph of the first chapter[1] we enter upon a new movement of thought altogether. The identity of Being and Naught is still maintained and also their distinction; but this identity and this distinction are no longer the identity and the distinction of *indifferent* objects which have been compared by an indifferent manipulator. Their identity becomes the unity of an organic whole in which their distinction is merely the variety of the organic factors entering into such a whole, a variety that is not, and cannot be, subjected to such a tension that a *separation* between the factors takes place. The dialectic engine has, up to this point, been revolving upon a turn-table operated by external force; from now on, it makes its way forward by its own power.

3. This remark leads us to our next task, which is to consider the relation that *inner* reflexion establishes between Being and Naught, and to see how Hegel exhibits this relation. But here we are likely to be called to a halt. We shall be told that Hegel nowhere indicates such a relation for us. And such an eminent authority on the Hegelian dialectic as Dr. W. T. Harris may be cited as conceding the truth of this contention; and, indeed, Dr. Harris does say that Hegel throws no light on the subject. The dialectic here takes a "hidden step," the logical chain contains a "suppressed link".[2] He thinks that Hegel himself knew well enough what the relation is, but he knew it so well that he did not think it possible that any one else could be ignorant of it; hence he has not touched upon the subject directly at all; and the expositor must "undertake a new analysis with a view to discover if possible that hidden step". That, if the

[1] L., 78 (78).

[2] *Hegel's Logic: A Book on the Genesis of the Categories of the Mind. A Critical Exposition.* By William T. Harris, LL.D., U.S. Commissioner of Education. Chicago: S. C. Griggs & Company, 1890. P. 172.

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need existed, Dr. Harris has supplied it, I do not question, and that Dr. Harris has shown the nature of this step in a far more lucid exposition than it was Hegel's good fortune to hit upon, I do not question. What I do question is that Hegel is silent as to the true dialectical process here.

The paragraph in which he treats of Becoming expresses the dialectical relation between Being and Naught. It is true that it is couched in the most distinctively Hegelian diction, whereas Dr. Harris writes in a language which he who runs may read. A literal translation of the Hegelian dialect of the passage I refer to runs thus: "*Pure Being and pure Naught are thus the same.* The truth, however, is neither Being nor Naught, but the fact that Being—not makes, but —*has made* a transition into Naught, and Naught into Being. But just as certainly is the truth not their indistinguishableness, but the fact that *they are not the same*, that they are *absolutely distinct*, yet also unseparated and inseparable; and that *each* vanishes immediately *in its opposite.* Their truth is, thus, this *movement* of the immediate vanishing of the one in the other—is, namely, *Becoming;* a movement in which both are distinct, but with a distinction which is immediately just as certainly cancelled."[1]

What Hegel means by the "*truth*" of any category is that in which alone it has any being, that in which it functions as a moment, but apart from which, in independence of which, it has no reality at all. And what he means by the vanishing of a category in its opposite, is the loss of it as an *independent* category in the engulfing organic totality of its dialectical negative. But the category that thus loses its life finds it again in the fuller life of the higher category into which it has been translated. If, then, the truth of Being and Naught is Becoming, "we see, therefore," to use Dr. Harris' words, "that we really thought a Becoming instead of an isolated term which we have named Being or Naught".[2]

Dr. Harris would perhaps say to this, that he does not deny that Hegel states accurately enough the *result* of the process in this case; what he denies is that he depicts the *process itself in the very act.* Hegel shows *that* the result is thus and so, but not *why* it is thus and so. And it is this explanation that Dr. Harris proceeds to give, and which I may summarise by saying that *pure* Being cannot be thought, and that for two reasons: first, to think Being as pure or indeterminate is to *determine* it by its contrast with all determined

[1] I., 73 and 74 (78 and 79). [2] *Op. cit.*, p. 178.

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experience; secondly, the very act of making it an object of thought "contrasts it with the subject of thought, and thus annuls it" as *pure*. But I find these two facts dwelt upon by Hegel at as great length as they are dwelt upon by his commentator. In Hegel's third remark upon this first triad, after he has identified Jacobi's "pure time" and "pure space" and "pure consciousness" with pure Being, because "they are expressly *determined as undetermined*," he says: "Just this undeterminedness, however, is what constitutes its determination; for undeterminedness is opposed to determinedness, and consequently is, as opposed, itself determinate".[1] I can see no difference between Dr. Harris' exposition and Hegel's on this point except a rhetorical difference; and I ask the reader to turn to the passage just quoted, to read the whole of it, then to read all that Dr. Harris has to say, and finally to determine for himself wherein the disciple's explicitness differs from the master's dark sayings. As to the *second* explanation given above, I find its twin also in Hegel, who says: "Being, which is in the most simple way to be kept fast in its abstract *independence* without being allowed to enter into thought, is exhibited in a combination that contains the very opposite of that which one intends to assert. Being, taken in its immediacy, belongs to a *subject*, is an assertion,[2] has an empirical *determinate existence*, and thus stands in the realm of restriction and of the negative."[3] Here again, I am unable to pierce to the dividing asunder of the author's and the expounder's exposition. Both say that *pure* Being cannot be thought, because, in the very act of thinking, it is brought into a determinate relation with the subject thinking.

But Hegel has another way of putting the matter, a way peculiar to himself and superior in dialectic truth to the way he has in common with his expounder. I have already quoted[4] at length the classical passages in which this method finds expression; but, because the matter is very important, I shall re-quote the most significant of those passages. "In Being as simple and immediate, the recollection that it is the result of complete abstraction and thus is already abstract negativity or Naught, has been laid aside before entering upon our science. But in the course of the science, expressly from Essence onward, that one-sided *immediacy* will be

[1] I., 94 (100).

[2] "Ist ein ausgesprochenes," where the emphasis must fall on *aus*; Being is an *utterance out of* the soul of the thinker, and is hence relative.

[3] I., 97 (102).

[4] January number of MIND, p. 63 ff.

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shown to be mediated; for there Being appears as *Existence;* and the mediating factor of this Being, the Ground, is *explicitly posited.*"[1] Again, in another place, he says: "It" (*i.e.*, the transition) "is immediate and entirely abstract, because of the abstraction of the transitive moments, that is, because there has not been explicitly posited in either of these moments the determinateness of the other, by means of which the transition could be effected. Naught is not yet *explicitly posited* in Being, although Being is *essentially* Naught, and *vice versâ.*"[2] And still another passage, which has not yet been cited, should be added here: "Dialectic is the name we give to the higher movement of reason, a movement into which such categories" (*i.e.*, as Being and Naught), "which appear absolutely separated, pass, making a transition each into the other, and making this transition of themselves, by means of what they themselves are; and thus the presupposition" (that Sophistry has to make) "is sublated. It is the dialectical immanent nature of Being and Naught themselves, that they should exhibit their unity, Becoming, as their truth."[3]

That is to say: If Being is *essentially* Naught; if later we shall discover that what now seems so simple and abstract is really complex and concrete,[4] and that it is at least two-fold in its nature, being both Ground and Existence, then upon retrospection we can see that what we thought was abstract Naught is only the negative or existential[5] nature of Being, and hence its origin out of Being is one of inner necessity. The reflexion, which was called *pure* in the beginning, can now be called *inner* reflexion, because the dialectical character of that reflexion now becomes apparent. At the very beginning of his science, if the logician chooses to go behind his science, he can easily convince himself of the mediated character of pure Being; but in doing so he gives up his character of logician and assumes the character of psychologist. As a matter of psychological history, the thought of pure Being is obtained by utter abstraction, *i.e.*, by a negative activity, which Hegel calls the work of Naught;[6] and of course the result contains that which contributed to it.

[1] I., 94, 95 (100). [2] I., 99 (105). [3] I., 102 (108).

[4] See III., 339 (350): "Die Methode, die sich hiermit in einen Kreis schlingt, kann aber," u.s.w.

[5] I use the word here with its Hegelian connotation, derived from its etymology; that is, it is used as a relative term. See January number of MIND, p. 64, footnote.

[6] I., 96 (102): "Das Phun des Nichts".

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But to say that Being arose *historically* by the generative act of Naught is very different from saying that when once born into history it has a *logical* bond binding it to its psychological parent. The logician must examine the category itself, in order to discover its relationship; the testimony of genealogical tables is external testimony. Family marks are worth more than family Bibles. The logician who investigates his category finds that it is *essentially* Naught—not the abstract Naught of the unreflecting consciousness, but the Naught that is a synthetic unity of Being and its opposite, the Naught that is Becoming.[1] But when he is *just* beginning his investigation, he has not yet made the discovery.[2] He merely sees Being and Naught side by side. There does not seem to be an *advance* from Being to Naught; Naught seems to have been reached *already*, when Being is reached. He seems to have two immediate data. But after his investigations have progressed somewhat, he sees that, when he had what appeared to be two data, he really had one concrete category, to the two moments of which he paid attention separately. Being stands side by side with Naught, because neither is pure, because each is merely an organic element in Non-Being, the concrete negation of Being. It is because Being is *what* it is *only* in that which robs it of its abstract independence, in that which negates it and thus posits it—it is because of this, that Being passes into Naught. But when the logician sees this, he also sees that this Naught into which Being passes is a *dialectical* negative, and *not* an *abstract* negative. But as the dialectical negative is richer than its positive, the passing from Being to Naught is an *advance* in a straight line, not a transverse motion. To sum this up in an expression which reproduces almost *verbatim* an expression of Hegel's, Naught appears immediately in Being just because Being is Being, *only* in the higher unity of Naught; just because Being is Being, *only* as an essential moment in the concrete totality of its negative.

The logician is a spectator of a performance by Hermann, the magician, and must not go behind the scenes. He is to let the magical feats begin where it is the good will of the magician to let them begin, and he must await developments. All he can do is to register the fact that when Being appears

[1] What I say here and in the whole of this paragraph, as to the identity of the antithesis and synthesis when they are viewed dialectically, will be justified in the sequel.

[2] That is, unless he has mastered the *presupposition* of logic. See the *Philosophical Review*, September, 1897, p. 497 ff.

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behind the lights, Naught stands by her side; or to be more exact in the metaphor, he notes that Being appears Protean; now she is Being and now she is Naught. He cannot see this metamorphosis going on; but he knows that it *has* taken place; for when he thinks that he is looking at Being, he discovers that he is really looking at Naught. He must wait patiently, and keep his eyes open and his wits alert. By-and-by he will detect the secret of the illusion. And he will then have the satisfaction of knowing that he comes by the solution of the puzzle without committing a breach of propriety. He has not sacrificed his dignity as a logician by peeping into psychological dressing-rooms.

Two questions now arise. (1) If Hegel really knew the true dialectical nature of the relation between Being and Naught, why did he not express it clearly in the text of his work when treating of these first two categories, instead of reserving the statement for his treatment of the third category and for the remarks? (2) Is not Hegel's way of stating this dialectical relation a *petitio principii?*

(1) The answer to the first question can be given only when we go back to what has been said in another place about the *double* aspect of many categories.[1] Pure Being has this double aspect. Regarded *abstractly*, you have a category that can be treated only by external reflexion, because such a category is not dialectical; just as a hand, regarded *geometrically*, cannot be treated *biologically*. We set a restriction upon the scope of our investigation, and cannot go beyond the restriction until we remove it.

Regarded in another way, Being is not an abstract identity, but is only a moment in a higher synthesis. This is the true dialectical way of regarding it; and the logician, if he has mastered the presupposition of his science, is conscious that this is the only dialectical way of looking at it. He knows that the category of thought-thinking-self, or pure Being, is not a category of dead self-identity. He knows that *thought is thinking* this category, and that therefore this category is only a distinction, a moment, within thought. It is an organic member within an organism. Hence it is pure Being, not as *abstract*, but as determined by its *own* nature of being organically related with its fellow-categories.

A careful reader of Hegel will therefore see that in A and B, on pages 72 (77) and 73 (78) of the first volume of the *Greater Logic*, the author is treating two categories by

[1] See January number of MIND, p. 57 ff.

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external reflexion; in C, he is treating them as they stand organically interrelated within a higher unity. In A and B, he is showing to ordinary consciousness the contradiction into which it falls, when it uses Being and Naught as it is constantly using them. And as the demonstration is for the sake of ordinary consciousness, it must be conducted in the only way which ordinary consciousness can follow, the way of external reflexion. Having thus shown the impossibility of the abstractly pure Being and pure Naught of ordinary consciousness, by showing how in their abstraction they are *absolutely identical*, and how their distinction is only a make-believe, Hegel then proceeds in C to state the *truth* with regard to them. This truth is that they have an identity in a higher unity, in which they also maintain their distinctness. In the independent character in which they *purport* to exist, they do not exist. They exist only as *moments*, only as *distinctions*.[1] This thought is very clearly brought out in C, and is expanded in the latter part of the

[1] Since writing the text I have read Mr. Hobhouse's discussion of the dialectical movement in his most valuable volume, *The Theory of Knowledge*, pp. 197-202. Does it bewray a heart too wickedly Hegelian in its desire to sublate everything in sight, when I say that I admit the truth contained in his characterisation of the Hegelian method, only I do not think it is the whole truth? Is it a case in which "Hegelism benignantly smiles at" her opponents' "exertions, and murmurs, 'If the red slayer thinks he slays'; 'When me they fly, I am the wings,' etc."? (Professor James' *The Will to Believe*, p. 293). Mr. Hobhouse says that "the dialectical process belongs to the pathology of thought". If what I maintained in the January number of MIND (p. 57 ff.) be true, then one aspect—but not the most important nor the most dialectical aspect—of dialectic does concern "the pathology of thought". But even supposing that this were an exhaustive account of the matter, is healthy thought on such a subject as the real function and value of abstraction so common, and is unsound thought so rare, that Hegel's attempt to supply a therapeutic is to be patronisingly judged as having indeed "a justification and a value of its own," but as being for all that mighty "tedious"? Again, when Mr. Hobhouse says that "this process . . . is set on foot, not by abstraction as such, but by the one-sided use of abstraction," does he not know that it is just this one-sided use of abstraction and *only* this that Hegel calls abstraction? The kind of abstract which Mr. Hobhouse rightly recognises as "a genuine characteristic of reality," Hegel recognises as such also. He sins merely by calling it not an "abstract," but a "distinction," a "moment," etc. Is it quite fair then in Mr. Hobhouse to hold Hegel up to general condemnation for *one-sidedness*, merely because Hegel was not lucky enough to anticipate Mr. Hobhouse's terminology? This seems to me to be but another of the innumerable instances in which an Hegelian insight gets itself "tricked and flounced" in some *fin de siècle* garb and then goes before the bar of public opinion as a witness to prove the philosophic barrenness of Hegel's mind, because forsooth it did not bring forth this offspring *ready-clad* in the most modern fashion.

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second remark;[1] but it is unnecessary to quote the passage here.

Let us state this turn of thought in another way. We must begin our logical movement with pure Being. But pure Being has a double aspect. It may be regarded as an unrelated abstract, or it may be regarded as merely an organic factor in a thought-unity. We begin with the first aspect of it, and find that it is a *false* aspect. We then take it in its other aspect; but we now find that really we are dealing as much with the organic unity to which it belongs as with the factor that belongs to this unity. That is, we may say that on this showing we really do not begin with pure Being, but with *Becoming*, which has Being as its moment. But such a statement must not be read with too much emphasis on the negative side of it; for as we now begin with Becoming, which has Being and Naught as its moments, the logical beginning, as Hegel defines it, is not Becoming, but the moments of Becoming. Becoming, being a concrete category analysable into Being and Naught, cannot be the logical beginning in this sense, but its *elements* are logically prior to it; and Being is the element with which we must begin. But this Being is no longer pure Being *as abstract*, but Being *as a moment in Becoming*. But in saying this we are already saying that in one sense we begin with Becoming. A little further reflexion will show that there is no contradiction in these two statements. There are two kinds of logical presuppositions, and therefore two logical beginnings. There is the presupposition on the part of the organic unity; for it presupposes its distinctions; hence logical movement must begin with these distinctions. But they are distinctions, only on the presupposition of a unity within which they have their being; hence logical movement must begin with the unity. Hegel, in saying that the initial category must be without presuppositions, means that it must be the *ultimate distinction*. In saying that Being presupposes absolute knowledge, absolute thought, he means that this ultimate distinction has in its turn factors, and thus becomes the *ultimate unity* in which what was just now the organic whole is a distinction; therefore the ultimate distinction is *not* ultimate, in the sense of being unanalysable.[2]

To apply all this to the case in point, and to sum up the whole discussion in an answer to the question we started to

[1] I., 85 and 86 (91).

[2] A fuller discussion of this reciprocity will follow in a continuation of this article in a subsequent number of MIND.

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answer: Hegel *does* represent the inner dialectical movement in the *text* of his *Logic;* but does not begin to do so till he comes to Becoming; because it is only after he has Becoming, that he has Being as its moment. But this "after" is also a "before," but not a "before" that is not also an "after". Hence, because pure abstract Being and pure abstract Naught are "befores" that are *not also* "afters," he begins with them only to show that he *cannot* begin with them. He does not really begin until he gets to Becoming, for it is only *then* that he has something prior to Becoming. These paradoxes may perhaps do something toward reducing to order the confusion that has flourished so long over this whole realm under the reign of the critics.

(2) The answer to this question leads us naturally to the second question asked above.[1] At first sight this question seems a poser. For it appears as if the logical validity of the final result of the logical process depended on the logical validity of the movement in the first triad, and yet the logical validity of this movement appears to be assured to us only by the final result. Is not this a *petitio?* Now, there is no question that there is a circular movement in this reasoning. Hegel himself admits it: "By this advance, then, the beginning loses the one-sidedness it had in being altogether an immediate and abstract category. It becomes something mediated, and the line of progressive movement in this science thus becomes a *circle.* At the same time, it follows that what constitutes the beginning is, in the beginning, not yet truly known, since at this stage it is as yet undeveloped and is without contents. It also follows that it is only the logical science, and that, too, in its completed development, that affords us a perfect knowledge of the beginning, a knowledge full of contents and truly grounded." [2]

But the circle is not a *vicious* circle. We do not begin with some *arbitrarily assumed* premiss. We begin where the nature of our task requires us to begin. This task is, as already stated, to show how even the lowest category leads irresistibly on to the highest. We start, therefore, with what is apparently the lowest, namely, pure Being. Inevitably, we know not as yet how or why Naught emerges before our view, and so identifies itself with Being that the two are inseparable. From this indissoluble but as yet mysterious union, into which our first category spontaneously enters, the progress is understood, and is seen to be logically necessary and perfectly uniform to the very last; and then,

[1] See page 238, above.

[2] I., 61 (65 and 66).



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behold, we reach the point from which we set out at the beginning,—but with this difference, that, whereas at first we did not seem to know anything about this category, not even why it was inseparably connected with another, now we know all about it; and among other things, we now know why it led to the second category, and we see that its relation to the second is exactly the relation of the first category of every triad to its *dialectical* antithesis, as will appear in the sequel. Thus we step upon a platform that appears to be stationary; but to our great surprise we find that it moves, we know not why. Subsequently the movement of the platform brings us within sight of the propelling machinery. The movement continues, and finally we are back where we started. But now we know the reason for the movement that was at first so inexplicable.[1]

[1] We should remember, however, that this inexplicability is only a psychological *ἀπορία*. The logical has no embarrassments. There is nothing *now* hidden from it, that shall *subsequently* be made known. The logician, as *a man enacting a history in time*, meets with many perplexities and many overwhelming surprises in his studies *at* logic. The logician, *as a logician*, is surprised at no truth that he sees in his studies *in* logic. He *eternally* knows it; otherwise I do not see how he could ever *come* to know it in any year of grace. To say the same thing in other words, the student who has mastered the presupposition of his logical science knows that his first dialectical category is an organic member in an all-inclusive totality of thought. He therefore knows why his first category leads to the second. The transition is for him a *moveless* movement, a *timeless* process, of inner reflexion. But for a student who begins with a *mere resolve* to consider thought as such, the transition is a great mystery, only to be reevaled in the fulness of time. At some moment in his student's career, there will dawn upon him the light which eternally lighteth every man.

(*To be concluded.*)

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## VII.—CRITICAL NOTICES.

*Philosophy of Knowledge; an Inquiry into the Nature, Limits, and Validity of Human Cognitive Faculty.* By GEORGE TRUMBULL LADD, Professor of Philosophy in Yale University. New York: Charles Scribner's Sons, 1897. Pp. xv., 614.

IN his *Introduction to Philosophy*, published in 1890 (see MIND, O.S., No. 62, vol. xvi., p. 271 ff.), Prof. Ladd offered the following scheme of the philosophical sciences: I. Philosophy of the Real, Metaphysics in its wider sense, embracing (1) Theory of Knowledge (Noëtics or Epistemology), (2) Metaphysics, or Ontology in its wider sense, embracing (A) Philosophy of Nature, (B) Philosophy of Mind; II. Philosophy of the Ideal, embracing (1) Ethics, which considers the ideal of conduct, (2) Æsthetics, which considers the ideal of art; III. The Supreme Ideal-Real (the Philosophy of Religion).[1] A glance at this scheme shows us just how far Prof. Ladd has travelled in his laborious and laudable effort to overtake the field of philosophical investigation, as well as the significance of his present work in its relation to the general undertaking. Taken with *The Philosophy of Mind*, published in 1895, this work completes the author's Philosophy of the Real, with the exception of the Philosophy of Nature. *The Philosophy of Mind* was described in the sub-title as "an Essay in the Metaphysics of Psychology"; it was an inquiry into the Ontology of Mind. The present work embraces the entire field of Epistemology, but it is again more particularly concerned with the "Metaphysics of Psychology". It was perhaps impossible to keep the two inquiries entirely separate. But Prof. Ladd does not seem, in these two works, to have made much real effort to avoid overlapping, even after defining and differentiating so carefully the scope of the science represented by each. Although *The Philosophy of Mind* is not an epistemological, but an ontological treatise, it contains so much epistemology that it anticipates, to a very considerable extent, the present work. On this occasion, the author shows more anxiety to keep within the limits of the special inquiry in hand, but the book contains not a little ontological theory. One cannot help questioning the wisdom of writing separate volumes on subjects so intimately related to one another. Apart from the actual overlapping, the constant cross-references and reminders of the limitations of the special investigation under

[1] *Op. cit.*, p. 176.

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way are rather irritating to the reader who wants to get the author's complete view, and whose time is, after all, a finite quantity. Prof. Ladd seems to write under a sense of academic leisure which knows no limits; but he would have secured even a wider, as well as a more attentive, hearing for his views if he had given them a more succinct presentation.

Nothing could be more admirable than the author's conception of the relation of Ontology to the special sciences on the one hand, and to Epistemology on the other. "If one were at liberty to construct a Theory of Reality which should be simply a logically consistent and symmetrical affair, satisfactory to the ideals of the architect but without regard to foundations of fact or questions of the right to occupy the ground in this way, the task would seem comparatively light. But in this day, and in the face of history, such a liberty cannot be intelligently claimed; much less can it be successfully exercised. Facts must be considered, and questions of right cannot be thrust aside or overlooked. For the former part of one's philosophical basis, the particular sciences are now responsible; for the latter part—the search after guide and guaranty—a particular form of philosophical discipline, sometimes called epistemology, is invoked." (Preface, p. vii.). For his essay in Epistemology Prof. Ladd claims "the treatment due to a pioneer work," remarking that among modern writers on philosophy in English, "so far as I am aware, there are none from whom any help is to be derived". If Prof. Ladd had merely disclaimed having derived help from any English philosopher, the statement would have been intelligible, although even in that case it would have provoked question by reason of its absoluteness. No author can afford, even if he is able, to ignore the work of his predecessors, and there are many traces of indebtedness in the present work beyond the few references—and they are surprisingly few if we deduct the references to the author's own works—in the text. But it is inconceivable that Prof. Ladd should intend to deny the claim of such writings as those of Mr. Bradley, Mr. Bosanquet, and Mr. Hobhouse—to mention living authors alone—to the name of Epistemology, or should imagine that there was no Epistemology before Kant. The negations of his Preface are indeed contradicted by his own statement (p. 8) that, since Kant's day, "the Theory of Knowledge (Epistemology or Noëtics, sometimes so called) has been one of the most active and fruitful branches of philosophical discipline".

The main points in the theory of knowledge which is unfolded in this volume may be indicated under two classes: first, those which have to do with the formal character of knowledge, and secondly, those which have to do with its content. As regards its form, human knowledge is (1) certain and final; (2) ethical and religious, or determined by will and feeling, as well as by the logical intellect; and therefore (3) teleological in its structure. As regards

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its contents or 'implicates,' it is a knowledge (1) of a real self, (2) of a real, 'transcendent' or 'extra-mental' object, which, since it can be known only after the analogy of the self, yields (3) the knowledge of an ideal universe, centring in a divine or universal Self, with whom knowledge is finally recognised to be a spiritual communion.

Taking these points in their order, we find Prof. Ladd maintaining strenuously the certainty and the finality, for man, of human knowledge. "Criticism must accept, as its problem, cognition, including all its necessary implicates" (p. 17). "One of the first discoveries which criticism makes is the truth . . . that the laws of the knowing faculty, and so the limits of knowledge, are firmly set in the constitution and characteristic development of the cognitive subject. . . . The primary datum of cognition contains within itself the corrective of agnosticism, the chastening of raw and unbridled scepticism; or else no such corrective and no such chastening are anywhere to be found" (p. 18). "It is an invincible persuasion, belief—use what word you will, if you do not like the term 'rational assumption'—of all men that truth is somehow to be attained by the mind. This is the indestructible self-confidence of human reason" (p. 19). "What higher principle of truth can there be than this: That must be true which is so connected with the knowing subject that he must either relinquish all claim to any kind of knowledge, or else assume the same to be true? What *is* actually thus connected with the knowing subject can only appear as the result of a critical investigation into the fundamental laws of the mental life in its acts of cognition. *For the theory of knowledge must be a theory of certainty*" (p. 21). "The process of certifying stops somewhere; it cannot, of course, go on for ever. And where this 'process' stops as a *process*, what other kind of certification can be either expected or actually found? Plainly, the answer to this question leaves us with some total attitude of mind, or in face-to-face recognition of certain implicates of all cognitive processes, which do not admit of any certification lying outside of that which they themselves possess. In other words, critical analysis of the nature of cognition, with a view to certify it, ends in the discovery of aspects, or factors, or implicates, of every exercise of cognitive faculty, which are self-certifying" (p. 105). Moreover, human knowledge must be final, as well as certain, for the human mind. "No other kind of knowledge is possible, or even conceivable for us men but *human knowledge*,—or just such knowledge as all men know themselves to have. This is a primary and invincible epistemological postulate. The picture of a divine intuition that should have no thought in it, as Kant attempts repeatedly to sketch the picture, is as purely imaginary as the conceit of a dialectical unfolding of concepts that never come to a resting-place in any intuitive knowledge. . . . The effort to exalt cognition by stripping it of some of the fundamental qualifications which be-

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long to it in a living human experience, and then to set it over against its actual self as a something worthy of envy by itself, if only it could be attained, always ends in the very opposite of what is intended. If *our* human knowledge cannot be shown to include some sure envisagement, so to speak, or trustworthy mental representation of the beings and doings of the Really Existent, then no other knowledge more inclusive can ever be the object of our striving or even the subject of our inquiry" (p. 106). All this may appear pretty self-evident, and yet there is occasion, not merely in the philosophy of Kant but in certain more recent metaphysical utterances, for the re-assertion of such plain truths. Difference of opinion will probably arise mainly with regard to Prof. Ladd's actual analysis of the 'implicates' of knowledge. Those who give an opposite interpretation of that knowledge will not necessarily be less strenuous advocates of its authenticity and integrity.

To the question of the relations of knowledge to the affective and volitional life Prof. Ladd devotes two chapters, chap. vi. on "Knowledge as Feeling and Will," and chap. xvii. on "Ethical and Æsthetical 'Momenta' of Knowledge". "No cognition at all is possible without the presence of affective and emotional factors in the very act of cognition, or without the influence of such factors over the nature of the cognitive process itself. To know *is* to feel as well as to think. . . . Nor can the slightest conception be formed of what knowledge would seem like, or actually be, if it were not rich also in content of feeling" (pp. 165-166). Nor is will less essential to cognition than feeling. It is the volitional element in knowledge that makes possible the differentiation of self and things. "I could never know that the world of real things is, and what it is, by a motionless, inert life of pure imagination and pure thought. The rather do I enter into a red-blooded strife with things, and by trying to master them and impress my will upon them, learn to know them as *that-which-will-not* always as *I will*" (p. 191). The fundamental epistemological truth deducible from this influence of feeling and will upon knowledge is that "the rational order of cognition proceeds from the concept of Self, with its numerous ethical and æsthetical impressions and ideas, to the more barren and less certainly valid concept of a Nature stripped of such impressions and ideas. But the latter concept, instead of being valid for Reality, because built upon verifiable facts that can stand apart from the conception of a conscious Self, and so account for the latter by a process of aggregation or development, is itself derived from the latter by a process of abstraction and progressive separation of different, seemingly separable 'Momenta'" (p. 518).

The chapter (xvi.) on the "Teleology of Knowledge" is one of the strongest in the book, and constitutes an able vindication of the higher utilitarianism of the intellectual life. "If, from the more

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mechanical point of view, psychology is warranted in describing the perceptions as what they are, because of the sensations and images of sensations which enter into them, and even in maintaining that perceptions exist at all only as the sensational and ideational basis is laid in the psycho-physical mechanism, still from the teleological point of view, epistemology also is warranted in holding that the active mind, in order to secure its own good, has selected and combined these particular elements into the totality of the perceptive construct" (p. 475). What is true of the percept is no less true of the concept. "What is called a concept must be regarded as a mental construct ruled over by the principle of final purpose" (p. 476). "Thought, in its effort to put the thinker into correct relations with Reality, is definitively and consciously practical; that is, teleological" (p. 479). "All our more deliberate thinking is essentially teleological; it is thinking toward the end of an improved solution of some proposition placed before the mind in the form of a problem" (p. 480). Not even in its highest forms is knowledge an end in itself. "The question as to the meaning and the final purpose of all human knowledge becomes merged in the question as to the total nature and ideal ends of Selfhood. The epistemological problem is answered by reference to the aims of the Being that realises the highest and best conception of Life. Cognition is part of the very life of the Self; but it is not the whole of that life; it serves that life in its striving after the realisation of its ideals" (p. 489). From the teleology of knowledge, as thus described, Prof. Ladd deduces the teleology of Reality. "The objects of cognition are known not only as connected into a system of interacting beings, but also as related to each other under the principle of final purpose" (p. 494). "These objects thus become, not merely interconnected beings, and transactions obedient to law in fact, but 'moments' in the Life of a Being that is actually realising its own immanent ideas" (p. 499). The transition from the subjective or epistemological to the objective or ontological point of view seems to be made a little too easily and even dogmatically; but it is only one of those 'ontological leaps' which, according to the author (p. 22), knowledge is bound to make, one of those 'implicates' of knowledge which the epistemologist is bound to affirm.

Of these 'implicates' or real contents of knowledge there are, according to Prof. Ladd, three main varieties. For him, as for the founder of modern epistemology, the self is the first and the typical certainty. "Self-consciousness is a pre-eminently 'intuitive' act of knowledge. . . . This very relation, in which the real subject stands to the real object, is an actual, concrete, and indubitable experience; it is not ignorance; it is rather that commerce of being with itself in which the essence of all knowledge exists. . . . We have no higher type of the divine and absolute cognitive activity than the realisation by the conscious human spirit of its own interrelated self-activities" (p. 202).

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In self-consciousness Prof. Ladd finds the implication of the reality of the object as well as that of the subject of knowledge. "The sources of a philosophy of knowledge and of a trustworthy metaphysics also exist, inexhaustible, in the incontestable fact that knowledge is *trans*-subjective, and, in its very nature, implicates existence beyond the process of knowledge; that cognition itself guarantees the *extra*-mental being of that which, by the very nature of this process, the cognitive subject is compelled to recognise as not identical with its own present state" (p. 18). This doctrine of the 'transcendence' of knowledge is emphasised again and again throughout the work.

Yet Prof. Ladd is no absolute dualist or mere 'Common Sense' realist. His dualism immediately becomes a monism, his realism an idealism. Apart from the other factors in his thought, already considered, which make for an idealistic form of monism—his insistence upon the functioning of feeling and will in knowledge and his resulting teleology—his fundamental conception of our knowledge of the object is, after all, thoroughly idealistic. Although the object is a 'trans-subjective' reality, it is not strictly a *non-ego*, but rather a kind of *alter ego*: on the affinity of the object to the subject depends the reality of the object of knowledge. "The definite and concrete conceptions we find ourselves obliged (or 'privileged'?) to form of Things, amount to a knowledge of their real nature only as a certain assumption is made valid. This assumption concerns the right to conceive of things after the analogy of our immediate and indubitable knowledge of the Self" (pp. 216-217). "And when the teleology of knowledge, and the ethical and æsthetical 'momenta' which enter into it, are taken into the account, warrant appears for saying that the very structure and growth of knowledge shows Reality to be a larger and all-inclusive Self" (p. 608).

Such is, in outline, the theory of knowledge (and of reality) presented in this volume. A closing criticism may be permitted —a criticism rather of the presentation than of the theory presented. It is perhaps inevitable that a treatise of this kind should be difficult reading, that it should be extremely abstract and therefore rather dry. But, considering the generous dimensions which the author has allowed himself, the reader might fairly ask for a more complete exhibition of the reasoning upon which the main conclusions rest, and a more thorough-going consideration of the difficulties which beset the argument than we find in the present work. With all its care and candour, its learning and ability, there is a certain air of dogmatism which is apt to leave even the sympathetic student unconvinced.

JAMES SETH.

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*Le Suicide. Étude de Sociologie.* Par ÉMILE DURKHEIM. Paris: Alcan, 1897. Pp. 462.

THERE is room for a new study of suicide. Morselli's book, which must still be regarded as the most comprehensive and on the whole the most scientific manual on the subject, is now nearly twenty years old, and is not only out of date but disfigured by many hasty generalisations which more recent writers have shown to be unfounded. It can scarcely be said, however, that Prof. Durkheim has replaced Morselli's manual. Although, with the assistance of the French Minister of Justice and old pupils of his own, he has prepared new maps and summarised the unpublished data of 26,000 suicides, the Bordeaux professor has for the most part been content to argue on old data, and has not brought his statistics up to date, even when the official publications of various countries would easily have enabled him to do so. Moreover, it can scarcely be said that the author takes any special interest in his subject except in so far as it expresses tendencies in the social organism, and consequently various aspects of suicide are passed over lightly or altogether ignored.

It is fairly clear, however, that Prof. Durkheim himself would not wish his book to be regarded as a complete manual of the subject. By calling it "a sociological study" he admits the bias which affects it throughout. The book is, indeed, not so much a study of suicide as a study of sociological method and, more especially, an illustration of the author's philosophy of society.

In the Preface this special object of the book is frankly set forth, and it may be briefly recapitulated for those who are not acquainted with the author's previous works. Sociology, he asserts, must be made something more than a mere form of literary philosophy; it must interrogate the auxiliary studies of history, ethnography and statistics; it must ascertain laws. The special value of the study of suicide is that it enables us easily to ascertain such laws, and so to demonstrate better than by mere argument the possibility of sociology. It enables us, he thinks, to establish a certain number of propositions concerning marriage, widowhood, the family, religion, etc., which teach what the ordinary theories of moralists are unable to teach; it even gives us some indications concerning "the causes of the general discomfort from which European societies are at present suffering, and concerning the remedies which may mitigate them". Further, it is not only the value of sociology in general, but more especially the value of Prof. Durkheim's sociology, which this study is to affirm. And for Prof. Durkheim society is strictly an organism; "the individual is dominated by a moral reality which goes beyond him: the collective reality". Thus he regards sociology as dealing with "realities as definite and as resistant as those the psychologist or the biologist deals with". As he elsewhere (p. 350) states it, "individuals by uniting form a psychic being of a new species, and

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which consequently possesses its own manner of thinking and feeling". That statement is the essence of Prof. Durkheim's sociological doctrine. Fortunately the value of his book is largely independent of a dogma so difficult to demonstrate, and as he has dealt fully with the general principles of his own system of sociology in earlier works it is not necessary to discuss them further here.

The volume consists of an introduction, in which suicide is defined and its relationship to sociology explained, and of three books. Book i. deals critically with the alleged extra-social factors of suicide, *i.e.*, with psychopathic conditions, heredity, cosmic influences and imitation.

If suicide is a manifestation of insanity, it becomes an individual phenomenon and ceases to have sociological significance. The author therefore proceeds to classify the kinds of suicides directly due to insanity, and finds that they fall into four groups—maniacal suicide, melancholic suicide, obsessional suicide and impulsive suicide—which are far from including the whole mass of suicides, and he shows also that insanity and suicide are not invariably parallel phenomena, it being sometimes found, as among the Jews, that where there are most insane there are fewest suicides. He admits that the neuropathic and especially the neurasthenic—of whom it may be noted he speaks on several occasions with much sympathy and insight—present the psychological type which is most commonly met among suicides, but he considers that such a type is so vague and ambiguous and may lead to such opposite practical results that we cannot attach much importance to it as a factor of suicide. In the same way it is shown that there is no close parallelism between suicide and alcoholism, and four charts make plain that while suicide is most prevalent in the north-east and south-east of France, the consumption of alcohol is greatest in the extreme north, offences due to alcohol are commonest in the north-west, and nervous and mental diseases due to the same cause are irregularly spread over the northern half of the country. The result of this discussion is to show that "though degeneration in its different forms constitutes a psychological soil eminently suitable for the action of the causes which may determine a man to kill himself, it is not itself one of those causes". Thus this psychopathic state is admitted (though perhaps minimised) as a predisposing factor, and this is as much as any reasonable advocate of its efficacy would desire to claim.

Chapter ii. deals with the question of race and heredity as a factor of suicide. The author here subjects to severe criticism the arguments of Morselli, Wagner and Oettingen that every race has its own suicide-rate, and gives reasons in support of his own contention that if, for instance, the Germans commit suicide oftener than other peoples, the reason is to be found not in race but in civilisation.

The next chapter is concerned with the cosmic factors. Ferri, Morselli and others, as is well known, attribute to the heat of

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summer a direct influence in producing suicide, the excitability of the nervous system being heightened by high temperature, or, as Lombroso holds, by the first heat of spring acting on an organism not yet accustomed to it. Durkheim disputes this alleged influence. He argues that the real parallelism is not between temperature and suicide-rate but between length of day and suicide-rate. He also points out that the majority of suicides occur during the day, and that Friday, Saturday and Sunday are the days on which fewest suicides are committed (except by women, who show a decided preference for Sunday). On these grounds he reaches the conclusion that the only possible explanation is that "day favours suicide because it is the time when business is most active, when human relations are most manifold, when social life is most intense". The discussion is acute and ingenious, and there can be no doubt that the author makes a strong point when he indicates the fairly close parallelism between suicide-rate and length of daylight. At the same time it is difficult to avoid a suspicion that his sociological bias leads him to jump a little hastily to his conclusion. His own figures show a certain excess of the suicide-rate in spring over autumn not to be accounted for by daylight. Moreover, the author ignores the important fact that in all great social centres, where, as he himself insists, suicide is most prevalent, social life is largely independent of daylight, its activity being prolonged into the night. It is now also beginning to be recognised that there are various annual organic rhythms in the human organism, in the pulse, for instance; in animals we have the period of sexual heat occurring when the suicide-rate is highest; and even if we accept intensity of social life as one factor of suicide we may still perhaps have to co-ordinate with it another factor of a cosmic or, at all events, of a general biological character.

In the following chapter Prof. Durkheim strives to show that imitation, commonly regarded as a frequent cause of suicide, has really scarcely any appreciable influence at all. He reaches this result by showing that a number of phenomena which have nothing whatever to do with imitation, are generally grouped with it. He denies, for instance, that suicides *en masse*—such as, according to Josephus, occurred at the siege of Jerusalem—can have been due to imitation; "they seem to result from a collective resolution, a real social consensus, rather than from simple contagious propagation"; when a social body reacts in common to the same circumstance there is no imitation and "we must distinguish moral epidemics from moral contagions". At the same time the author admits that "perhaps no phenomenon is so easily contagious" as suicide; but he goes on to deny that this contagion produces any marked social effect; its consequences remain, he asserts, individual and sporadic. The chief argument here rests on a map of France, so constructed by the author as to exhibit the distribution of suicides throughout France by *arrondissement*, and not, as is usually done, by department. It is

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thus found that suicide is not arranged concentrically around maximum points from which it progressively diminishes, but that there is "relative identity in the effects due to relative identity in the causes," great towns being developed under the influence of the same causes which determine the development of suicide rather than themselves contributing to determine it. Thus imitation does nothing more than "render apparent a condition which is the true generating cause of the act, and which, seemingly, would always have found means of producing its natural effect, even if it had not intervened". Altogether a very ingenious discussion, but somewhat over-acute, and probably less likely to carry general conviction than any portion of the book.

Having thus attempted to put aside, or minimise, the extra-social factors of suicide, in book ii. Prof. Durkheim proceeds to discuss the social causes and the sociological types of suicide. The three main sociological types of suicide he terms egoistic, altruistic and anomic.

By egoistic suicide is meant that particular type of suicide which is the result of extreme individualism, and the chapters devoted to it are mainly a discussion of the influence of religion, education, the family, etc., in which it is shown that all the facts indicate that every loosening of social or domestic bonds increases the tendency to suicide. Protestants commit suicide much more frequently than Catholics; "now the only essential difference between Catholicism and Protestantism is that the latter allows free examination to a much greater extent than the former," all variation being offensive to the Catholic mind. It is also shown that religious minorities show a lower suicide-rate than is normal to them in larger communities; this is attributed mainly to the greater social integration of minorities. England is of all great Protestant countries the least inclined to suicide; and this statement is followed by a discussion of the English Church, its hierarchal constitution, its approximation to the Catholic Church, and the great respect in England for tradition, and especially for religious tradition.

But freedom of religious thought is necessarily accompanied by a higher standard of education, and this leads to a further argument. The most educated countries are the most suicidal countries. Where Catholicism is most prevalent, there is also least education and the suicide-rate is lowest. In Italy the standard of education varies exactly with the suicide-rate, and England, which in suicide-rate comes lowest of Protestant countries, shows also the largest proportion of persons unable to read or write. In England, also, where the sexes are more nearly equal in ability to read and write than elsewhere, the sexual distribution of the suicide-rate is also more equal. The Jews, it is true, are the most educated and the least suicidal of races, but they possess the protection which belongs to well-consolidated

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minorities, and—again falling back on one of his rather fine-spun distinctions—the author finds that "the Jew seeks instruction not to replace his collective prejudices, but simply to be better armed in the struggle". But although Catholicism and ignorance are a protection from suicide, the author carefully guards himself from becoming a champion of either. "Religion is the system of symbols by which a society becomes conscious of itself," and if it protects men against suicide, this is only by virtue of its being a society. In the same way education is merely a result of the disorganisation of religion, and is far from being a source of the evil.

Turning next to family societies the author proceeds to investigate the influence of celibacy, marriage and widowhood. At first sight it appears that the unmarried kill themselves less frequently than the married, but, following Bertillon *père*, Durkheim shows that this is merely due to the fact that the unmarried mostly belong to the age least apt for suicide, and the preponderance is really the other way. Widowhood diminishes but does not abolish the protection conferred by marriage. The interesting point is brought out that women benefit much less by marriage than do men (though the presence of children tends to modify this). Prof. Durkheim attributes this to the more rudimentary sensibility of woman; "as she is more outside the common life than man, that life penetrates her less; society is less necessary to her because she is less impregnated by society". On the whole the author concludes that suicide varies in inverse ratio with the degree of integration of religious, domestic and political society.

Altruistic suicide—a type chiefly prevalent in primitive societies and of which the *suttee* may be taken as an example—is more briefly treated. It is the characteristic of altruistic suicide to be regarded not as a right but as a duty, and its significance at the present day is small. Early Christian martyrdom may, however, be regarded as a form of altruistic suicide, as may also, Prof. Durkheim believes, the suicide of soldiers to-day. Suicide, as is well known, is very prevalent among soldiers, and the author, briefly sketching the psychology of the soldier, argues that his complete abnegation of individualism, his consolidation in a strict society recalling the more primitive forms of social relationship, constitute a soil on which altruistic suicide alone could flourish.

A more important form of suicide is that which the author terms "anomic," by which he means the suicides produced by any sudden social shock or disturbance, such as that due to economic disasters. Men commit egoistic suicide because they see no further reason for living, altruistic suicide because the reason for living seems to them to lie outside life itself, anomic suicide because they are suffering from a disturbance of their activity. If financial or industrial crises augment suicide, the author argues, it is not because they impoverish, for crises of

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prosperity have the same result, and poor countries enjoy a singular immunity from suicide; it is simply because they *are* crises, because, that is to say, they perturb the collective order. Poverty protects from suicide, and maps are presented showing that the departments of France where most people live on their incomes correspond with those where the suicide-rate is highest. But an economic disaster unclasses certain individuals and causes a painful process of social readjustment, while a prosperous crisis involves a similar new graduation of social standards. Then the author turns to another form of suicide with which he had already dealt to some extent under the head of egoistic suicide (thus revealing a weakness in his classification)—domestic suicides. He here deals with the suicides due to divorce, and further develops in detail the remarkable and interesting point already brought out, that marriage is a greater protection to men than to women. Where divorce does not exist, or where it has only lately been established, women contribute in larger proportion to the suicides of the married than to those of the celibate; the more prevalent divorce becomes, the more favourable marriage is for women. The development of divorce involves an improvement in the moral situation of women, and it is the divorced man who is more exposed to suicide. "We thus," the author remarks, "reach a conclusion far removed from the current idea regarding the part played by marriage. It is regarded as an institution established for the benefit of the wife, in order to protect her weakness against masculine caprices. In reality, whatever may have been the historic causes which led man to impose this restriction on himself, it is he who has profited by it. The liberty which he has thus renounced could only have been a source of torment to him. Woman had not the same reasons for abandoning it, and in this respect we may say that, in submitting to the same rule, it is she who has made a sacrifice" (p. 311).

In book iii. the author gathers together his arguments, further expounds his general conception of society as a group of collective tendencies with an existence of its own as real as the cosmic forces, discusses the relation of suicide to criminality, and presents the practical consequences of his study. He has no sympathy with sociologists like Ferri, who regards suicide as legitimate; on the contrary, he considers that the current condemnation of suicide, though crude in its formulas, is not without objective value. Society is injured by suicide; and therefore suicide must be counted immoral. At the same time any severe punishment is out of place, "for suicide is the near relation of real virtues of which it is but the exaggeration". Prof. Durkheim has no important suggestion to make in aid of the prevention of suicide; he relies mainly on his favourite panacea of co-operative associations of workers, professional groups or corporations developed on a new basis and made a definite and recognised organ of daily life.

On the whole this is a work which every subsequent writer on

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suicide must seriously reckon with, while at the same time it confirms Prof. Durkheim's position as an original and systematic investigator into social problems.

HAVELOCK ELLIS.

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*Theory of Thought and Knowledge.* By BORDEN P. BOWNE, Professor of Philosophy in Boston University. New York: Harper & Brothers, 1897. Pp. xiii., 389.

THE author of this volume is perhaps the most vigorous American representative of certain phases of metaphysical idealism. Beginning a score of years ago with a trenchant criticism of the philosophy of Herbert Spencer, he has since published works on metaphysics, psychological theory, ethics and theism. The most conspicuous traits of these works reappear in a mature form in the present volume. With considerable variations as to method and emphasis, Prof. Bowne has through all his publications combined keen criticism of sensationalism, associationalism and materialism, on the one hand, with equally penetrating insight into the shortcomings of speculative rationalism and the resulting idealistic metaphysics, on the other. Recognising, nevertheless, a partial truth in each of these types of theory, he has sought to reconcile them in a view of knowledge which shall do justice to the scientific ideal and at the same time reveal the necessary (though not deductively demonstrable) metaphysical basis of science. The result is an idealism that culminates, not in a mere logical universal or all-inclusive thought or even thinker, but in a person whose will is the ground of the material side, as his thought is of the formal side, of the world. A specially characteristic note in Bowne's thinking is his insistence that the problem of error is vital in theory of knowledge and that it can be solved only by acknowledging that human freedom is a constitutive factor in human knowledge. Comparing the present volume with the author's *Metaphysics*, published in 1882, we find less of the direct influence of Lotze, clearer recognition of the positive as distinguished from the negative demands of criticism, a more cautious method, and yet firmer confidence in our ability to think the universe in a broad and rationally defensible way. Metaphysics independent of theory of knowledge, for which he then contended, is now to be superseded by a metaphysics that is inherent in cognition itself,—they are "different aspects of the whole question rather than mutually independent factors" (5). There is, in fact, scarcely enough separation of the problems, for the real self and freedom receive consideration under the head of logic rather than under the head of epistemology.

As indicated by the title, the book has two divisions, one dealing with advanced logic, the other with theory of knowledge proper. In view of the extent of this field, the limits which the author has imposed upon himself in point of space are extraordinary. The

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compression of logic and epistemology into one modest-sized volume implies the omission of much important material, and makes the task of selection decidedly difficult. The pace is necessarily rapid. Here and there either more or less would be desirable. For example, the twenty-one lines given to equational and symbolic logic are too few either to inform a beginner or to meet any need of the advanced student. The monism of Spinoza and the New Spinozists gets only a page and a half; the whole of theory of knowledge proper occupies only 124 pages; there is no index, and references to and citations from authors are exceedingly rare. But the author chose his method with deliberation, and has not failed to secure advantages by means of it. Matter and manner are admirably direct, simple, and clear, and the main issue in each discussion is kept constantly in mind. Neither in mode of thought nor in mode of speech will one find here the ponderosity, as distinguished from weight, that makes many a book of philosophy needlessly wearisome.

The root-idea of the work is that "thought is an organic activity which unfolds from within, and can never be put together mechanically from without" (iii.). Thought is accordingly sharply distinguished not only from sense, but also from association. It always has an objective or real reference, and implies the real unity of its subject and connexion among its objects. It gets its objects only as it gives unity and articulate meaning to what would otherwise be a passive and meaningless state. The given is not 'a' sensation, for a specific sensation exists for us only in the act of discrimination which constitutes it an idea with fixed meaning. "There is, then, an implicit logical activity in the simplest sensation by the time it is anything for intelligence" (41). It is next shown that the experience of a recurring sensation, inasmuch as the sensation itself does not recur, involves the use of the logical universal. In addition, the experience of recurrence requires that the two sensations be related under the time form and their contents identified, all of which is the constitutive work of thought. "The work is not reflectively done, but is really done, nevertheless. The mind does not yet possess reason, but reason possesses the mind" (44). Then comes the interpretation of sensations by reference to things, substances, causes, etc. At each step the mind actively constructs for itself the needful relation. This is not to dissolve nature into a set of ideas, but only to show how we get our ideas; and this process would be the same whatever the nature of the external world. The existence of a real thing would not account for our knowledge of the thing; spatial things would not help us to know things as in space; the occurrence of events in succession would not found any knowledge of the succession; and, in general, the reality of objective relations would not carry with it any ground for the knowledge of things as related. We know relations only by performing the mental act of relating.

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Thus we reach the problem of the categories, or the "immanent mental principles which underlie articulate experience and make it possible" (59). The chapter on the categories is probably the most important in the book, and is, withal, a somewhat courageous piece of work. To show that the whole of knowledge is not accounted for by empiricism is a relatively easy task; to make an inventory of the overplus is not so simple. Probably this task, like that of science in general, will never be completed; only a spiral approximation toward completion is to be looked for; yet such unity as our knowledge is capable of attaining depends upon our making this effort in one form or another. The author makes no attempt to deduce the categories, but discovers them rather by analysis of the products of actual cognition. They are to be regarded as general forms or classes of mental action, and even when we have them in correct formulation, "there is a certain departure from the fact, which is always and only the mind acting in various ways" (115). No reason appears why there should be just so many and no more, and others may be brought to light hereafter. The categories are as follows: first, a general category of Likeness and Unlikeness; then, the elementary categories of mechanical science,—Time, Number, Space, Motion (a mixed category), Quantity; finally, the "metaphysical" categories,—Being, Quality, Identity, Causality, Necessity, Possibility, Purpose. Of the latter group, two, Necessity and Possibility, are called doubtful categories, the former being only an illegitimate extension of logical necessity, —a change from the necessity of an affirmation to the affirmation of a necessity,—and the latter having its only clear meaning in the self-determination of a free being. The category of Purpose is introduced to provide for the unification and systematisation of our objects. Not even Causality, it is said, meets this demand. It will thus be seen that the author adopts the view of causality of the Transcendental Dialectic, according to which a causal series, just because it is causal, is capable of indefinite extension. From the general tenor of the discussion we should expect to find the other view, suggested in the Transcendental Deduction, that causation itself expresses the systematic unity of all objects of experience. All that is included in the category of Purpose could be found in causation thus understood. For, to adapt a well-known phrase to a new use, "*Kausalität verstehen heisst über (mechanische) Kausalität hinausgehen*". Causation as a law cannot mean anything less than the unity of the world-whole, and this, on the author's own principles, could be understood only as the unity of an all-embracing consciousness. Purely mechanical causation may be a meaningless term; in any case, we suspect that, after admitting a category of mechanical causality, it will be difficult to persuade its votaries to subordinate it to that of Purpose. This leads us to note the fact that the author finds among the categories a kind of grouping and subordination strongly suggestive of a system. "There is connexion among the categories. The



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attempt to stop with the lower categories reveals, upon reflexion, inadequacies and inconsistencies which cannot be removed until we advance to the higher categories, or the highest" (113). "Some are necessary to even elementary experience, while others are necessary to the reflective systematisation of experience. Hence it is easy to think that only the former are necessities of thought; but the fact is that only the former are necessities of certain phases of thought. When thought is complete, however, it may appear that the higher categories are the supreme laws of thought, and that the lower categories vanish unless they are taken up into the higher" (107). It is one of the virtues of this discussion of the categories that a distinction has been maintained between the metaphysical question as to their objective value and application and the logical question as to what are the immanent principles of cognition. If, however, there is system among the categories, and the categories express the nature of mind, and mind (or personality) is, as the author says in a subsequent chapter, the only reality, then it is desirable that this systematic side of the categories should receive a metaphysical development.

The remaining chapters of part i. are concerned with the notion, the judgment, inference, proof, deduction and induction, explanation, and fallacies. Enough has already been said to indicate the general point of view enforced wherever these topics touch basal problems. For the rest, the material has been selected, apparently, with a view to the correction and enlargement of the traditional notions of formal logic. The chapters on explanation and structural fallacies have peculiar practical value. Two difficulties are discovered in the scientific explanation that seeks to discover laws by a process of analysis: first, analysis often yields aspects instead of components, and aspects are abstract; secondly, when it does yield true components, we are obliged either to attribute the law of the whole to the components, in which case the elements do not explain the compound, or else to exclude the whole from the components, in which case all chance of explanation is destroyed. The introduction of time does not help. "From one point of view something that long ago was, explains all that is; from the other, something that for ever is, is the only explanation of all that was, is, or will be" (232). But in no case does the mind reach final satisfaction either by the mere analysis and description of the phenomenal contents of experience, or by introducing the notion of derivation in time. The whole with its law must still be construed, and so, once more, the category of purpose must enter, or, as we should rather say, the notion of personality. "This is the only simplicity which can originate complexity; the only unity which can produce plurality; the only universal which can specify itself into particulars; the only real explanation of anything" (233). In the chapter on Structural Fallacies we have, first, a general discussion of the problem of error. If we assume the essential truthfulness of our faculties and yet admit the fact of

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error, we must account for the dualism. It is not sufficient to seek causes for error in the system of nature, for an effect is neither true nor false; furthermore, if we admit that the error goes as deep as the nature of things as a whole, there will remain neither any possible test of our cognitive processes nor any trust in our faculties. The only view of the situation that does not wreck knowledge as a whole is acceptance of the fact (apparent to us all along) that, in order to knowledge, there must be, in addition to the laws of thought, self-control and real freedom. The name 'structural fallacies' is given to the subtle fallacies that grow, in a sense, out of the structure of thought and of language. Three of these, the fallacy of the universal, that of the abstract, and that of language, are helpfully discussed.

Part ii. has for its subject epistemology proper, or "the nature and the extent of the validity of our thought for the independent object" (17). The first chapter, on Philosophic Scepticism, shows how the sceptic fails to escape the objectivity that is vital to thought, but assumes laws of thought, a community of intelligences, a common world, and something already known. This is true of the partial scepticism of sensationalism and positivism, as well as of general scepticism; for the negative side of all such theories breaks against the necessity of assuming the coexistence of minds and a world common to them. The keynote of the second chapter, on Thought and Thing, is this: "From the standpoint of the Absolute, things may possibly be conceptions; but from the human standpoint it is impossible to identify things with *our* conceptions" (296). Neither materialism nor idealism overcomes this dualism. Idealism in its usual forms has suffered from the fallacy of abstraction, 'thought' being treated as an agent instead of as a function of an agent, and no clear distinction being made between the thought of a finite thinker and that of an absolute thinker. Absolute thought does not explain human knowledge. Nevertheless, the dualism that is necessary for us cannot be necessary for all mind; "we must at last come down to a thinker whose thoughts are things" (310). But, as the chapter on Realism and Idealism maintains, we do not derive this idealistic conclusion from any analysis of the knowing process, but by analysis of the object known, and the system of objects. This shows that objects are meaningless apart from mind and consciousness. We must not, however, reduce things to mere thoughts at any point; the objectivity of thought is inexpugnable, and, indeed, a mere thought is itself only an abstraction from the concrete fact. We must therefore conclude that "the world is not merely an idea; it is also an act" (342). Thus is reached the author's theism, which he insists upon as a necessary implication of knowledge. The chapter on Apriorism and Empiricism gives an historical setting to the author's modified rationalism. "Of course a rational mind, one impelled by its nature to seek connexion, will surely take a continuous coming together as a mark of belonging together" (355 f.)

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This leaves an obvious gap, which cannot be filled by an apriori process any better than by empirical processes. The result is that "we have no absolute concrete science whatever" (366). Dogmatism, both metaphysical and scientific, is ruled out; and there remains to us only the tentative, experimental method of the analysis of the given. Practical needs and impulses thus receive due recognition, for knowledge and belief are seen not to differ in kind. Finally, it is not the process but the product of cognition that may claim to correspond with reality. "The order of our learning is in no way the order of existence. We have to find our way from fact to fact as best we can, not by the highway of the absolute reason, but by the by-paths of our human intelligence" (389).

The characteristics of the book may be summarised as follows: a style so lucid as to be dangerous, the clearness of the stream concealing its depth; robust appreciation of life—the idols of the cave fare very badly; hearty recognition of the empirical element in knowledge and utter rejection of mere speculation, but tireless insistence upon the constitutive function of thought; a final synthesis of realism and idealism in a supreme person, while human freedom is made to account for error. The author promises a volume on metaphysics. We shall look for it with interest.

GEORGE A. COE.

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*Philosophical Lectures and Remains of Richard Lewis Nettleship, Fellow and Tutor of Balliol College, Oxford.* Edited with a biographical sketch by A. C. BRADLEY, Professor of English Literature in the University of Glasgow, formerly Fellow and Lecturer of Balliol College, Oxford, and G. R. BENSON of Balliol College, Oxford. 2 vols. Macmillan & Co. Pp. lvi., 394; vi., 364.

THESE volumes are good from beginning to end. They are so good that it is difficult to avoid the injustice of treating them as if they contained Nettleship's finished work, intended by him for publication, whereas there is nothing in them that was written by him for the public, except the chapter on "Plato's Conception of Goodness and the Good," which occupies 150 pages of the first volume. The Logic lectures in vol. i., and the lectures on Plato's *Republic*, which form the whole of vol. ii., are redactions of lecture-notes. The miscellaneous papers and extracts from letters, which fill more than 100 pages of vol. i., were "of the nature of private and probably hurried correspondence" (Preface). The editors have no doubt used a wise discretion in excluding other redactions of lecture-notes which had been prepared. The result is that the volumes form a whole in which the more original and characteristic element is not submerged by less interesting matter, but

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makes its individual impression, reinforced and explained by those very valuable lecture-notes which have been chosen for publication.

Prof. Bradley's biographical sketch is just what it ought to be. It communicates what is necessary of the outline of Nettleship's life; but the author has chiefly aimed at assisting his readers to feel and understand his friend's very remarkable personality, and at furnishing suggestions through which his philosophical ideas may be more readily appreciated. There could not be a more useful introduction or one more in harmony with the thoughts which it leads up to.

Nettleship died in his forty-sixth year, having been for more than twenty years a tutor at Balliol College. Except the memoir of T. H. Green, and the well-known essay in *Hellenica* on "Plato's Theory of Education," he had published nothing considerable. Though he never abandoned the idea of retiring, probably to London, and devoting himself to philosophical writing, yet the fact that a great part of his life—as it turned out, practically the whole—was spent in oral teaching on philosophical subjects, had a certain reason in his nature. The unique greatness of Socrates and Christ appeared to him to have something to do with the fact that they wrote nothing. A life which should genuinely put in act the best ideas would be greater, he was inclined to think, than anything one would be likely to write. And oral teaching, he felt with Plato, is after all the only way in which one mind comes into living contact with another.

This attitude of his—the effort to maintain a perfect vitality, an unbroken continuity of thought and life—reflects itself in all his philosophical thinking. There is an extraordinary directness, and, in a sense, an extraordinary simplicity in all his thought; the current technical terms are often barely mentioned, and the reader may be left in doubt whether he has been carried beyond the controversies which he knows by name, or has failed to get so far. Much more might be said on the connexion of Nettleship's ideas with his life and character, but it is time to pass to particulars.

He had, as he says himself, a strong tendency to Spinozism. He hardly touches any problem without at once applying the conception of making the most of life. And doubtless this was connected, though by what steps it is not easy to see, with the other side of his Spinozism, which he expressed as a sort of indifference to the distinction between the organic and the inorganic. Perhaps—it is a mere suggestion—his feeling might be approached by saying that the true self, the greatest self, must be something as far removed from our vulgar condition of desire and fear (which he constantly specifies as the two typical forms of negative or isolated consciousness) as is the being of a stone or a wave.

At any rate, the problem of feeling was perhaps the first in his mind. How, in feeling, we get to anything of real value; what is the relation of the localised shock—*e.g.*, the feeling "up the

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back" when we hear music—to that which in feeling is a true embodiment of the self and an increase of life? this is a question constantly recurring in his private letters as in his lectures and studies on Plato. That desire and fear and sentiment, as commonly understood, are thoroughly worthless, was a fundamental conviction with him. The way of escape, he held, might be conjectured from the example of art; feeling is at once maximised and spiritualised as it takes form in action or artistic expression (thereby becoming a new kind of feeling, not the former feeling *plus* expression). In such utterances, he points out, it becomes divested of its opposition to reason or intellect. A great work of art, a great deed, a highly civilised language, embodies at once a myriad times the intellect or rationality and a myriad times the feeling which a simple piece of primitive speech or music can carry. If we deny this it is because the larger utterance expresses too much for us, and we fail to grasp it. And so the "lower" pleasures, he agrees with Plato, are bad simply because there is so little in them; they may absorb us, but in doing so they reduce us to sheer blankness of content. His application of the principle that the more is the truer is as striking in logical as in ethical matter. His treatment of the difference between perception and conception, between theory and fact, between words and things, between conceivability and sensation as tests of truth, may be regarded from this point of view.

Closely analogous, and of the same kind of interest, is his treatment of Personality, Individuality, the self. Here two points may be mentioned; first, the insistence on the double aspect of Individuality, *viz.*, that the "Individual" may be such, not in as far as he is so little that he cannot be further divided, but in as far as he has a great deal that cannot be taken from him, this being what we mean by a "great individuality:" and secondly, the very acute criticism of current errors as regards "consciousness of self," in which it is urged that self-consciousness, as commonly understood, is just that in which we are not conscious of self so much as of a not-self, an exclusion and limitation of self, as in fear and desire, shyness, or the being driven back by an intellectual difficulty. And so when we are told that the best things are done "unconsciously," this should not mean without intelligence, but without distraction of intelligence, without consciousness of other things, such as people looking at us. Or when we are told it is the privilege of man to be self-conscious in his action, this ought not to mean to be aware of something else than what he is doing, to be watching himself from an alien point of view; but to be in the fullest sense *in* the action. He was fond of comparing the word "interest" as = being "in it," with the slang phrase to be "in it" or to be "out of it". Yet he knows that we must not be exhausted by our interest; we must be above the thing as well as in it. Probably if we could have had his completed thoughts on this problem, in what conscious-

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ness we are most fully ourselves, the mystery of the extreme Spinozism above referred to might be solved.

The paper on the meanings of "Spirit," with a discussion on the symbolism of the Eucharist, exhibits his strong sense of continuity in yet another application; and still more striking, perhaps, is his frequent recurrence to the problem of life and death, considered as kindred forms of change. We call it death when the change is to something less; life, when the change is to something more. "If we could 'energise' a great deal more continuously than most of us can, we might experience physical death literally without being aware of it." "To 'live' is to 'die' *into* something more perfect." The paper from which this last sentence is quoted is entitled "The Atonement"; it is a short jotting evidently for the author's own use, but opens up a striking vein of thought by suggesting that a true insight into the relation of life and self-sacrifice would show how a perfection is conceivable which neither involves meaningless progress nor yet death by complete "adaptation to environment".

The chapter on "Plato's Conception of Goodness," and the lectures on the *Republic*, are of such a quality as might be anticipated by those who know the *Hellenica* essay. Remembering that Jowett never set himself to interpret Plato in detail, though no doubt all intelligent study of Plato in England goes back to him, it may boldly be said that nothing exists, at least with reference to the *Republic*, in the way of Platonic interpretation, at all of the same character as these volumes. We have here the meaning of Plato as read by a first-rate scholar, being also a man of true philosophical genius. He has expressed his interpretation with the directness and simplicity which depend ultimately on the absolute singleness of his own purpose, for which nothing existed except in as far as it threw valuable light on the more important meanings of his author. The chapter on Plato's conception of Goodness traces the Greek notion of an end or order of things as presented throughout the whole range of Plato's writings. The lectures on the *Republic* amount to a most attractive short paraphrase of that dialogue, bringing home its essential significance with extraordinary felicity to the English reader. The whole is so coherent that it seems impossible in a small space to give any idea of the merits of his treatment. One of his most successful discussions is that which deals with the Greek idea of "limit" or "measure," in order to free it from the associations of finiteness which attach to such terms in the modern mind. And, indeed, the whole problem of the connexion between goodness and knowledge in the Greek mind has never, I think, been so precisely and so sympathetically treated before. Is it too much to hope that at least the second volume, forming as it does by a very long way the best extant introduction to Plato's *Republic*, may some day be published at a price which would give students a chance of buying it?

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It is not the least interesting point in Nettleship's mind that, while recognising the greatness of T. H. Green and the value of his ethical theory of society and citizenship, he was not altogether disposed, either by temperament or by his theoretical tendencies, to accept it as exclusive truth. Is there no other way to the Kingdom of Heaven than that of the best citizenship? he asks, having just expressed his longing for a life "combining a simple satisfaction of one's simple animality with the highest spiritual energy of which one is capable". Others seem to be asking the same question, and suggesting that the purely social theory of life has been overdriven. Only a few points have been indicated out of the wealth of thought and perception which these volumes contain. It was not granted to the author of these papers to leave behind him any completed fabric of thought, and it is difficult for one who knew him to judge dispassionately; yet considering not only the natural greatness of mind which appears here, but the precision of knowledge and the fine simplicity of expression recognisable even through the medium of students' reports of lectures, I incline to believe that these volumes will be the delight of a large circle of readers through more than one generation.

B. BOSANQUET.

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*Habit and Instinct.* By C. LLOYD MORGAN, F.G.S., author of *Animal Life and Intelligence, Psychology for Teachers*, etc. London and New York: Edward Arnold, 1896. Pp. 351.

INTIMATE acquaintance with the ways of animals, sobriety of judgment, a natural aptitude for psychological analysis, and unfailing lucidity, both of thought and expression, form the characteristic merits of Mr. Lloyd Morgan's work. No other writer on Animal Psychology with whom we are acquainted combines these qualities in so high a degree. One of them, however, is perhaps pushed to excess. His love of lucidity sometimes leads Mr. Morgan to simplify overmuch.

As an example of what we take to be undue simplification, we may refer to the chapter on "Consciousness and Instinct". The leading idea of this chapter is that the instinctive movements which follow in response to an appropriate stimulus owe their determinate character to connate physiological arrangements. They are therefore not to be regarded as psychological facts. On the other hand, the various peripheral impressions due to the changing states of the muscles, etc., and the changing relations to external objects, produce corresponding modifications of consciousness in the way of sensations. When the action is repeated under similar conditions on a subsequent occasion, the residua of these bygone sensations may be revived by association, and modify the behaviour of the animal. The sight of a caterpillar prompts a

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chicken to peck at and swallow it; this is an instinctive response, and its determining character is due purely to physiological pre-arrangements. But it may happen that the caterpillar turns out to be distasteful, so that the chicken ejects it instead of swallowing it. When, on a subsequent occasion, it catches sight of a caterpillar with similar markings, the previous sensation of disgust is reinstated by association, and the chicken, in consequence, refrains from pecking, or, if it pecks at all, it pecks in a cautious and tentative manner. Now there is one side of this doctrine which we at once acknowledge to be true and instructive. The definite nature of the instinctive movements is in the first instance due purely to physiological conditions, and it is the experience gained in the course of them which serves to guide subsequent action. The connate instinct is in fact a means supplied by nature for the education of the animal. It is when we come to Mr. Lloyd Morgan's account of the precise *manner* in which subsequent behaviour is modified by previous experience, that we find ourselves unable to agree with him. We disagree with him for two reasons, both because we believe his assumptions to be insufficient to account for the facts, and also because we believe his assumptions to be in themselves unjustifiable. Our space only allows us to make a brief reference to the first point. Mr. Morgan's assumptions are not sufficient to account for the facts. They can only appear so by the surreptitious introduction of an anthropomorphic point of view. Evidently, when Mr. Lloyd Morgan speaks of the revived sensation of disgust, he is thinking of the chicken as having in its little head an idea of a future event apprehended as standing in a certain relation of sequence to a present experience, on condition that a certain other event takes place, *viz.*, the act of pecking. This certainly would account for the facts, and for a great deal more than the facts. But we must remember that the bare revival of an experience cannot be or contain more than the original experience itself. Now all that Mr. Lloyd Morgan has to work with is bare revival or repetition; and the original experiences which are supposed to be revived or repeated are mere crude or isolated sensations, without any kind of meaning. They are not even linked together by a continuous conation; they are certainly very far indeed from being perceptions of things or qualities or their relations. Each crude sensation originally produces a certain movement in a reflex way. When a number of sensations are brought together by association, each will tend to produce its own movement, just as it did before. So far as the movements are incompatible, they will partly neutralise each other. I do not see what other result this could possibly have except chaotic confusion. Certainly, the result could not be the intelligent guidance of behaviour in relation to an end. But this is precisely what the facts show us. It is impossible, for instance, to see how in this way a spider should come to test by trial the stability of its web, before being satisfied to leave it. It is impossible to see how a chicken should come to

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make a tentative peck at a suspicious caterpillar just to see what it is like before swallowing it. In fact, Mr. Lloyd Morgan's view is exposed to all the objections which have been brought against the attempt to build mind out of the isolated atoms of sensation.

It would carry us too far to attempt to state the solution of the problem which we would substitute for Mr. Lloyd Morgan's. We may say, however, that we think he would have treated the question on right lines if he had constantly kept in mind and followed up in detail the position which he states on page 156. Here he lays stress on the instinctive impulse. "Impulse . . . is the tendency of any organism to satisfy its needs and fulfil the conditions of its being." "At the touch of experience" these needs "are modified or further defined. . . . When new stimuli come there is an impulsive tendency to realise, not the old being . . . but a new being, in what that which was due to inheritance is modified by that which has been acquired by individual experience." This is a fundamentally different account of the matter, though the author does not appear to see the difference. Of course in any case association and revival are involved in the process; but association and revival may assume many very different forms, and the real question is, what sort of association and revival are operative in this primitive learning by experience?

We have dwelt on this point both because of its importance and because it is the only part of Mr. Lloyd Morgan's work to which we are inclined to take exception. The book as a whole deserves almost unqualified praise. The early chapters, dealing with the author's experiments and observations, are full of interesting matter. The chapter on "Imitation" begins with a useful distinction between imitation proper and copying. The treatment of this topic is on the whole excellent, and brings into clear light the nature of social tradition among animals, and its importance for their mental development. The chapter on "Emotions" is very clear, but we think that Mr. Lloyd Morgan has been somewhat rash in his wholesale acceptance of James' theory of emotion,—a theory which, in its extreme form at least, has ceased to be held by its author. The general organic disturbance must originate in general nervous disturbance, and what can the psychical correlate of this be if it is not emotional? Special chapters are devoted to the "Habits and Instincts of the Pairing Season," and to "Nest-building, Incubation, and Migration". We miss, however, a chapter on the Play of Animals, a most important topic, which has been recently dealt with in a most instructive manner by Karl Groos in his book on *Die Spiele der Thiere*.

The concluding chapters are mainly devoted to biological problems. Mr. Lloyd Morgan rejects the doctrine of the transmission of individually acquired modifications, or, at any rate, he regards it as too dubious even for a working hypothesis. On the other hand, he strongly supports the view that individual power of varying in accordance with varying conditions gives natural selection time to

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operate and determines the lines on which it shall operate. This theory, which is certainly very luminous and convincing, appears to have originated almost simultaneously in more than one mind. Among these, Prof. Baldwin is perhaps the most prominent. I do not know whether Mr. Lloyd Morgan has also a claim to originality in the matter, but his exposition is certainly very able.

It should be said in conclusion that the book is in Mr. Lloyd Morgan's best style, and that it is delightful reading for everybody, as well as indispensable reading for specialists.

EDITOR.

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# VIII.—NEW BOOKS.

*British Moralists; being Selections from Writers principally of the Eighteenth Century.* Edited with an introduction and analytical index by L. A. SELBY-BIGGE, M.A., formerly Fellow and Lecturer of University College, Oxford. 2 vols. Oxford: Clarendon Press, 1897. Pp. lxx., 425; 451.

MR. SELBY-BIGGE, already well known by his excellent editions of Hume's *Treatise* and *Inquiries*, has followed them up by printing two volumes of selections from British Moralists. The first volume consists of extracts from Shaftesbury, Hutcheson, Butler, Adam Smith and Bentham. In the second there are extracts from Samuel Clarke, Balguy (*Foundation of Moral Goodness*) and Price; with an appendix of shorter extracts (in smaller type) from the second part of Balguy's work, from Brown's *Essays on the Characteristics*, from John Clarke's *Foundation of Morality*, and from Cudworth, John Gay, Hobbes, Lord Kames, Locke, Mandeville, Paley, and Wollaston. In this way a large number of works, representing pretty fairly the British Moralists, especially of last century, and some of them not easy to obtain, are made accessible to the student. The list is of course not exhaustive, as may be seen by a glance at the useful Bibliographical Note, compiled by Mr. Selby-Bigge. Neither Cumberland nor Henry More is represented; and it would certainly not have been easy to select satisfactory extracts from either. Perhaps, however, the attempt might with advantage have been made, in the case of Cumberland, especially in view of the important position which Prof. Sidgwick gives to him in the history of English Utilitarianism. Some passages should, I think, have been given from Priestley's *Essay on the First Principles of Government* (1768), as they contain the first clear statement of Benthamite Utilitarianism. This work is omitted from the Bibliographical Note.

With the writers who are both of first-rate importance and not easily accessible, Mr. Selby-Bigge's plan is to give one work almost in full, adding selections from other works where necessary. In this way Shaftesbury's *Inquiry Concerning Virtue and Merit* and Hutcheson's *Inquiry Concerning the Original of our Ideas of Virtue and Moral Good* are given almost in their entirety. The passages omitted are certainly not of very great importance; but I venture to think that it would have been well to print these works (the latter of which is by no means easy to procure) without any omission. The satisfaction of having the complete treatise would have made up for the few extra pages of print. Butler, of course, lends himself to selection, as his work is not wholly ethical. But it is to be regretted that it was not found practicable to print the *Theory of the Moral Sentiments* in full. Space might, if necessary, have been saved by the omission of the extracts from Hobbes' *Leviathan* and from Bentham's *Principles of Morals and Legislation*, works of very easy access.

On the other hand it is a real boon to have reprinted in such convenient form the copious extracts from Samuel Clarke, Price, Cudworth, Gay and

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Wollaston, as well as from some less well-known writers. It is useful also to have Locke's ethical views brought together. But, unfortunately, the extracts are taken from the first and second books of the *Essay* only. A very incomplete idea of Locke's doctrine of morality can be gained from these. Portions of book iii., chap. xi., and book iv., chaps. iii. and iv., of the *Essay*, ought certainly to have been included; and some passages from the second *Treatise of Civil Government* might have been added with advantage.

The arrangement of the selections is a little perplexing. The first volume contains the Moral Sense writers *plus* Bentham; the second volume consists of Moralists of the Intellectual School along with an appendix (more than half the volume) of miscellaneous writers arranged alphabetically. I cannot but think that it would have been much better to arrange all the authors chronologically, although Mr. Selby-Bigge has no doubt some good reason for not having adopted that course. If I may make one complaint more, it is that Mr. Selby-Bigge might—at least in the case of the authors from whom the longer selections are taken—have indicated the character and length of the passages omitted.

If Mr. Selby-Bigge's work is in some places open to criticism, it is none the less true that it is, as a whole, the result of great care, great learning, and good judgment, and that he has made all students of moral philosophy his debtors. One portion of the work it is impossible to praise too highly. This is the index, which is on the plan of his elaborate indices to Hume. It is a most complete and valuable guide not only to the usage of terms, but to the doctrines of the moralists represented in the work. I have used it repeatedly, and never known it to fail.

W. R. Sorley.

*The Psychology of the Aggregate Mind of an Audience.* By G. H. Diall. Terre Haute, Ind.: The Inland Pub. Co., 1897. Pp. 81.

*Magic: Stage Illusions and Scientific Diversions.* Compiled by A. A. Hopkins. With Introduction by H. R. Evans. New York: Munn & Co., 1898. Pp. xii., 556.

*Herrmann the Magician, his Life, his Secrets.* By H. J. Burlinghame. Chicago: Laird & Lee, 1897. Pp. iii., 298.

*Hours with the Ghosts, or Nineteenth Century Witchcraft.* By H. R. Evans. Chicago: Laird & Lee, 1897. Pp. vi., 302.

The object of Mr. Diall's essay, which is based upon sixty-eight sets of *questionnaire* returns, is to demonstrate the existence of an 'aggregate' or collective mind, to analyse it into its constitutive processes, and to view its principal phases in the light of the individual mind of scientific psychology. The aggregate mind is "a mental condition of the individuals of a group, brought about by their acting in unison, and by the peculiar environment under which they have been gathered together". Its processes, common to all the individuals of the group, consist of instincts (in James' sense), emotions, and imagination (the passive arousal of associated visual ideas); active attention, and with it the processes of reasoning and of volition, are either wholly lacking or but feebly represented. The passive attention shows a definite trend; the collective mind is eminently suggestible, both by the leader (orator, preacher) and, so to speak, by itself; the group of minds exerts an influence, as group, upon the individual minds that compose it. For most practical purposes, the collective mind is the mind of an 'inexperienced and healthy youth of sixteen or twenty years of age'.

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Mr. Hopkins' *Magic* and Mr. Burlinghame's *Herrmann* explain the methods whereby the conjurer is enabled to trick his audience into a state of credulous belief. They may thus be looked upon as a sort of detailed appendix to Mr. Diall's essay. Indeed, the conjurer's audience is, perhaps, the very best material upon which to base a study of the collective mind; for in it the general characteristics of that mind are thrown into exaggerated relief,—or, to use Mr. Diall's phrase, the point of fusion of individuals into aggregate lies very low upon the fusion scale. The psychology of suggestion, from the performer's side, is discussed in popular fashion by Prof. Dessoir, in a paper which forms the Introduction to Mr. Burlinghame's volume. But there are, in reality, no less than four distinct sources of suggestion in the case: the suggestion of performer to audience, the suggestion of total audience to each member of audience, the suggestion of each member to himself (shown by the mere fact of attendance at the performance), and, lastly, the reactive suggestion of audience to performer. All these must be worked out, before the psychology of the collective mind of the audience can be fully understood; and a good deal of information in regard to them may be obtained from the two books now under consideration.

Mr. Evans' *Hours with the Ghosts* is a detailed *exposé* of the tricks of slate-writing, materialisation, spirit photography, Blavatskyism, etc. Like Mr. Hart's recent work on Mesmerism, it will do good service; and, like that book too, it leaves a bad taste in the reader's mouth: there is evidently much more sheer roguery in the world than the average man is apt to believe. Unfortunately, the author is still to some extent in the bonds of superstition; telepathy and psychic force figure largely in his explanations.

It may be remarked, incidentally, that Mr. Hopkins' and Mr. Burlinghame's compilations have a value for the experimental psychologist, over and above their interest for collective psychology, in their suggestion of methods for laboratory work. The *Magic*, in particular, takes rank in this regard alongside of the works of Robert Houdin and Maskelyne.

*The Subconscious Self and its Relation to Education and Health.* By L. Waldstein. New York: Charles Scribner's Sons, 1897. Pp. 171.

The author conceives of the human mind as laid down, so to speak, in two strata, the conscious and the subconscious. The processes of each stratum are systematised into a 'self'. Subconscious processes are the 'organic and splanchnic' sensations and all other conscious content that is not given in the state of (active) attention. The conscious self is the self of sight and hearing, and of the lower sensations so far as these are (actively) attended to. Or, to put the distinction briefly, the conscious is the intellectual, the subconscious the emotional self. The mind of the child consists wholly of subconscious processes; and these are also chiefly responsible for the moods of artistic enjoyment and creation, for the religious attitude, for dreaming and hypnosis, etc.

This doctrine of the dual nature of mind is propounded for two reasons. Dr. Waldstein desires to combat the fatalism of modern ideas of heredity. He therefore seeks, in the first place, to explain a number of mental peculiarities and failings as the effect of subconscious suggestion during childhood, rather than of direct inheritance; and, in the second place, offers ground from his own medical experience for the belief that they may be removed and corrected by later education—education addressed, as the individual case requires, either to the conscious or to the subconscious self of the patient.

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The facts alleged in favour of this view cannot be disputed. But a theory may not be set up upon the basis of a score of extracts from clinical records. The essay presupposes a whole psychology. The reader feels the need, in particular, of evidence for the systematisation of the two hypothetical selves, and of a statement of Dr. Waldstein's theory of attention.

*The Principle of Teleology in the Critical Philosophy of Kant.* By D. R. MAJOR. Ithaca, N.Y.: Andrus & Church, 1897. Pp. vi., 100.

This essay—a thesis accepted for the Cornell doctorate—consists of two parts, the first historical, the second expository and critical. Part i. traces the influences that led to the acceptance of a tripartite division of mind (intellect, feeling, will) in place of the older bipartite division. It also shows that Kant's original intention, in writing a third Critique, was to establish *a priori* principles of the new faculty of feeling; and argues that the combination of the Critiques of Taste and of Teleology into a single Critique of Judgment was due to the fact that both alike were seen to centre round the idea of purposiveness.

Part ii. indicates the need of mediation, formal and real, between the two Critiques of theoretical and of practical philosophy. The real opposition between them is to be found, primarily and chiefly, in the admission or rejection of the concept of freedom. By an elaborate analysis of Kant's theory of the beautiful, and a discussion of his use of the principle of teleology as applied to organic nature, the author is able to make it clear that the Critique of Judgment effects the desired real reconciliation. A concluding section suggests that Kant would have allowed objective validity to the teleological principle, had not the table of categories in the *K. d. r. V.* been already complete.

*The Origin and Growth of Plato's Logic.* With an account of Plato's style and of the Chronology of his writings. By W. LUTOSLAWSKI. London: Longmans, Green & Co., 1897. Pp. xviii., 547.

Mr. Lutoslawski's elaborate treatise deserves, and will command, the attention of all Platonic students. The author attempts to establish the chronological sequence of Plato's most important dialogues by a review of forty-five publications on the style of Plato, supplemented by other evidence from allusions to contemporary writers, cross-references from one dialogue to another, etc. In the second division of his work, Mr. Lutoslawski expounds the origin and development of Plato's logical theories (in the widest sense of the term 'logical') in conformity with the chronological order, established, as the author believes, by Stylometry. The most important conclusion at which he arrives is that "the system of latest Platonism is no longer a system of ideas, but a system of souls, of different and increasing perfection," with a divine Providence over all, and the Ideas no longer, as in middle Platonism, independent, self-existing substances, but present only in souls, being eternal and unchangeable only, "because their first model is created by God in his own thought".

A fuller account of Mr. Lutoslawski's work must be reserved for a later number of MIND: at present we will only say that much of his reasoning in part ii. is (in our view) inconclusive, and that the stylometrical observations in part i. are of very unequal value.

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*An Outline of Psychology.* By E. B. TITCHENER. Third edition. London and New York: Macmillan & Co., 1897. Pp. xiv., 352.

The author has introduced two principal changes into the text of this third edition: the final section, on the mind of metaphysics, has been rewritten, and pain has been reduced from the level of common sensation to that of epidermal and muscular sensation. There are, further, a number of minor additions and corrections; a paragraph is devoted to complication experiments, the range of attention is compared with that of affection, etc., etc.

*La Philosophie de Charles Secrétan.* Par F. PILLON. Paris: Félix Alcan. Pp. 197.

This work first appeared as a series of articles in the *Revue Philosophique*, and was designed to give an exposition and critical estimate of Secrétan's philosophy. The exposition deals first with Secrétan's metaphysics and then with his ethics. In the former the doctrine of absolute liberty is fundamental, in the latter that of 'charity,' the connecting link being furnished by Secrétan's doctrine of substance as will. M. Pillon's criticism, which is preceded by some account of the historical relations of Secrétan's system, turns chiefly upon these three doctrines, and subjects them to a severe examination. Secrétan is found to have failed in his endeavour to conciliate theism with pantheism, monadology with monism. In connexion with the doctrine of substance M. Pillon takes occasion to mark the fundamental opposition between Secrétan's metaphysic and that of the neo-critical school. Full notice will follow.

*Études d'Histoire de la Philosophie.* Par ÉMILE BOUTROUX. Paris: Félix Alcan, 1879. Pp. 443.

Though M. Boutroux' studies in the history of Philosophy can hardly be said to display originality of thought—indeed such originality is practically excluded by the plan of the book, which consists in the main of encyclopædia and magazine articles—they deserve high commendation for accuracy of statement and precision of language. In these respects M. Boutroux manifestly possesses in no slight degree that combination of exact knowledge with the gift of lucid exposition which is so singularly characteristic of the best French scholarship. The brief introductory essay on the "History of Philosophy" sets before us in a few well-chosen sentences the principles by which the author has been guided in the composition of the following pages. His attitude towards his subject is neither that of the antiquarian, who is chiefly concerned with tracing the origin and growth of philosophical ideas, nor that of the constructive philosopher bent on finding anticipations of his own discoveries in the doctrines of his predecessors. M. Boutroux is before all things a historian of philosophy, whose aim it is to discover the inner nexus by which the various theories of the great philosophers have been held together in the minds of their authors; in a word, to present each philosophical system, not so much in its relations to those which precede and follow it as in the form and with the proportions in which it presumably appeared to its originator. The complete execution of such a task would of course require a large number of exhaustive monographs, each dealing with the life and work of a single philosopher. Of such studies, on a smaller scale, M.

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Boutroux gives us four, devoted to Socrates, Aristotle, Kant and Jacob Böhme. Of these four studies that on Socrates will perhaps be found to be the most suggestive and original. The articles on Aristotle and on Kant, both composed for the *Grande Encyclopédie*, are from the nature of the case little more than compendious statements of uncontested facts, and leave little room for independence of view, but in both cases the work of summary statement is done with knowledge, sympathy, and truly admirable skill. It is surely no slight accomplishment to have given in ten pages an account of the *Metaphysics* and in thirteen an account of the *Critique of Pure Reason*, which are at once accurate, clear and simple. I regret that my ignorance of theosophy has not enabled me to judge how far the interesting essay on Böhme shares the characteristics of the other three. The shorter essays on Descartes and on the influence of the Scotch school upon French philosophy can only be mentioned in a brief notice like the present. I may just remark in passing, however, that M. Boutroux is doing more than justice to Scotland when on p. 419 he classes Shaftesbury along with Hutcheson, Reid, and others as one of the ornaments of Scotch philosophy. There are one or two other slight inaccuracies of statement, notably in the article on Aristotle, which should perhaps be noticed by a reviewer, though they do not seriously affect the trustworthiness of M. Boutroux' account of the great philosopher. Thus at p. 103, no doubt by misadvertence, the author expounds the meaning of the word "acroamatique" "selon la pensée d'Aristote". It need hardly be said that the word ἀκροαματικός does not occur in the Aristotelian writings, and that the Aristotelian use of the kindred ἀκρόασις, ἀκροάσθαι does not bear out the ascription to Aristotle of the distinction between acroamatic and exoteric works. Indeed M. Boutroux admits as much when he goes on to say, "lui-même ne les applique pas à ses ouvrages". So again at p. 118 it is unfortunate that the name "catégorèmes" should be given to the heads of predicables; κατηγόρημα is a word which, to judge from Bonitzs' Index, occurs but rarely in the Aristotelian writings, and always with the meaning of (*a*) *predicate* or (*b*) *category*. The name for the heads of Predicables seems to have been γένη τῶν προβλημάτων (cf. *Topics*, i., 101, b. 38 ff., with 107, b. 19). Nor is the statement on p. 151, "Aristote paraît être l'auteur de la doctrine de la sphéricité de la terre," altogether justifiable. In the myth in the *Phaedo* Plato had not only described the earth as round (περιφερής) but had expressly compared it to a ball (σφαῖρα), and Aristotle's own discussion of the subject (*de Cælo*, 293 ff.) implies that the opinion was already widely current in philosophical circles. It would be unreasonable however to lay much stress on the occurrence of one or two trifling inaccuracies of this kind in an article which gives, in the moderate compass of little more than a hundred pages, a comprehensive account of Aristotle's life, works, opinions and influence on subsequent philosophising. Nor is it a very serious error when at p. 201 Bacon is made to say of Aristotle what we read in *Nov. Org.*, i., 65 and 96 of Plato and Pythagoras.

In the essay on Socrates M. Boutroux sets himself with considerable success to controvert a view of the great Athenian which has been made widely popular by Zeller. According to this view, which is based, as M. Boutroux acutely observes, upon a single passage in Aristotle, Socrates was before everything a logician and epistemologist bent upon detecting a necessary and universal element in human knowledge. His primary object was the discovery of universally valid definitions, and it was in consequence of his failure to find these definitions in the physical speculations of earlier thinkers that he restricted his attention to moral problems. M. Boutroux on the other hand, holding by Xenophon as the best authority for the views of the historical Socrates, maintains that the



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ethical interest was from the first the predominant one, and that the search for definitions arose as a development of the original desire for self-knowledge and self-mastery, or in other words that the Socratic conception of the object of philosophy gave rise to the Socratic theory of philosophic method, and not *vice versâ*. This view of the case is sustained by M. Boutroux with great force, and he is certainly successful in showing that, on his theory, all the familiar characteristics of Socrates, his Hedonism, his identification of virtue with knowledge, his professions of ignorance, his catechetical method, are at once accounted for, and are seen to be in the most intimate connexion with one another. The consistent and harmonious character which the teaching of Socrates assumes when looked at from this standpoint is certainly in its favour, but it may be doubted whether M. Boutroux has not simplified the problem rather too much by excessive deference to the authority of Xenophon. The assumption that Xenophon's portrait of his master must be a faithful one because he had not genius enough to idealise, though both common and natural, must be pronounced mistaken. The man who could put into the mouth of the town-loving Socrates such a panegyric on country life as we read in the opening chapters of the *Oeconomicus*, and who professes to know that his master shared his own extravagant estimate of the younger Cyrus, was surely quite capable of giving his own peculiar colouring to the discourses reproduced in the *Memorabilia*. Xenophon's inventions may not be so interesting as Plato's, but they are none the less inventions for that. Hence it is perhaps unfortunate that M. Boutroux should have taken the emphatic statements about Socrates' aversion from physical science which we read in *Memorabilia*, bk. i., *au pied de la lettre*. Xenophon, Plato and Aristotle are of course all at one in saying that Socrates never taught nor speculated for himself on physical matters, and so much may therefore be safely taken as certain. But when Xenophon goes on to say that Socrates' reason for abstaining from physical speculation was the religious one that he thought it impious, he is making a statement which is not only not corroborated by Plato, but stands in marked contradiction with the more reasonable language ascribed to Socrates in the *Apology*. Moreover his own admissions in *Mem.*, iv., 7, as to Socrates' geometrical and astronomical attainments, seem to make it certain that the extreme language of i., 1, expresses rather the sentiments of Xenophon than those of his master. I cannot therefore think that M. Boutroux is justified in treating the statements of *Mem.*, i., 1, as sufficient to disprove the alleged relations of Socrates with Archelaus. Taken in connexion with the admissions of *Mem.*, iv., 7, these statements seem to contain no positive disproof of the view which appears to be suggested by well-known passages in Plato, that Socrates had really in his earlier days gone through some sort of training in the older physical philosophy. There must surely have been some foundation of fact, however slight, for Aristophanes' onslaught in the *Clouds*. A caricature which retains none of the features of the original is hardly tolerable even as caricature.

A. E. T.

*Les Croyances de Demain.* Par LUCIEN ARRÉAT. Paris: Félix Alcan, 1898. Pp. 178.

A speculation on the future of religion by one who has ceased to believe in the old creeds. It is recognised that religion as a social bond plays an essential part in the life of humanity; but it is maintained that this function has no necessary connexion with the special beliefs in which the religious sentiment has been embodied in historical creeds. Faith is

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required, because it is only by believing in the good that it is possible for us to aim at attaining it. Belief in the immortality of the individual is not necessary. For the belief that intelligence reigns in the universe, we can substitute the belief that the universe is intelligible and that we can understand it. For the belief that justice reigns in the universe, we can substitute the belief that we are able to bring about its supremacy by our own efforts, if we strive to do so. An interesting little work.

*L'Enseignement Intégral.* Par ALEXIS BERTRAND. Paris: Félix Alcan, 1898. Pp. 313.

M. Bertrand does not concern himself with primary education or with secondary education. He desires to propound a scheme of education adapted to quicken and develop the intelligence of all members of society to whatever class they belong, so that they may most efficiently fulfil their social functions. He vehemently opposes the old teaching of Latin and Greek, and would substitute a training in science. This scientific instruction is to constitute a complete education, by being so arranged as to develop all the faculties of the mind. This the author thinks possible, if the order and method of scientific education is based on a systematic classification of the sciences such as Comte has given. The book is interesting though by no means convincing.

*Qu'est-ce que le Progrès?* Examen des idées de M. Herbert Spencer. Par N. MIKHAÏLOWSKY. Traduction du Russe, revue par PAUL LOUIS. Paris: Félix Alcan, 1897. Pp. 200.

The author admits that progress involves differentiation of function: but he objects to the transference of this principle from the individual to society. The division of labour in society is directly hostile to the differentiation of function in the individual. But true progress consists in the perfection of the individual: hence the author concludes that whatever diminishes the heterogeneousness of society by augmenting the internal heterogeneousness of its individual members, is moral, just, reasonable, and useful.

*L'Évolution des idées générales.* Par TH. RIBOT, professeur au Collège de France, directeur de la *Revue Philosophique*. Paris: Félix Alcan. Pp. 260.

It is M. Ribot's intention to publish a series of treatises on various branches of psychology. This book, which is a summary of lectures given at the Collège de France in 1895, is the first of the proposed series, and deals with the processes of abstraction and generalisation. M. Ribot traces the development of general ideas in (1) animals, children and deaf mutes, (2) primitive races, (3) scientific theory and classification. This division corresponds to three stages: (1) the stage previous to language, (2) that at which ideas are accompanied by words and the importance of language gradually increases, (3) that at which the substitution of words for ideas is complete. There are, accordingly, two elements in conceptual thought: the conscious element, which is language with or without mental images, and the obscure, unconscious element, without which the process of symbolic thought would be entirely mechanical. A notice will follow.

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*Der aeltere Pythagoreismus.* Von Dr. WILHELM BAUER. Bern, 1897. Pp. viii., 232.

This is a work of very considerable labour and contains a large number of discussions which the specialist in Greek philosophy will have to take account of. Unfortunately it originated in a prize essay, and the subject is not therefore one of the author's own choosing, nor one, as he tells us quite frankly, in which he felt at home. But he has worked hard at his appointed task, and so conscientious a worker has of course made a certain number of finds. It is necessary, however, to point out that his method is fundamentally wrong, and that no view of early Pythagoreanism can claim a hearing which is based upon such a treatment of the sources as we see here. One striking example will justify what I have said. Dr. Bauer writes (p. 49):—

"The same Stobæus who has preserved to us the aphorisms of Philolaos upon the origin of the Kosmos, comes to the conclusion in another passage that there is no question of a proper, temporal origin, but only of an origin 'dem Begriffe nach'; Πυθαγόρας φησὶ γεννητὸν (γενητὸν) κατ' ἐπίνοιαν τὸν κόσμον, οὐ κατὰ χρόνον. This passage has awakened suspicion on various grounds. . . . Zeller rejects the statement altogether, while others (Ritter, Chaignet) accept it quite uncritically. Both extremes, however, are a poor service to the cause of historical truth. . . . If the same writer gives us apparently contradictory pieces of information, why are we so ready to charge him with an error or at least an oversight? Ought we not rather to say to ourselves that the author in question must have known his own production as well, if not far better, than we can, and that he would have been the first to be struck by the contradictions of his exposition supposing such did occur?"

It is many a day since the good Stobæus has been treated with such respect as this. Fancy the diligent compiler "coming to a conclusion" or being struck by an inconsistency in his exposition! The fact is—incredible as it may appear—that this work, originally a Berlin prize essay, seems to have been written in complete ignorance of the *Doxographi Graeci* of Hermann Diels, who is the greatest authority on such subjects and a Berlin professor into the bargain! Had Dr. Bauer consulted this monumental work, he would have seen that the "conclusion" to which Stobæus comes is merely an imperfect extract from an older work, and if he had glanced at the parallels from the *Placita*, Cyril and Theodoretus, he would have seen that the passage originally ran quite differently and that the view in question was attributed to a much larger number of philosophers, and only incidentally to Pythagoras, if at all. To treat a doxographical fragment like this as evidence is perfectly absurd. It is nothing but a heading taken from a systematising handbook and has no authority whatsoever.

Dr. Bauer believes in the genuineness of the fragments ascribed to Philolaos, a belief which he shares with many great authorities, including Zeller. But neither he nor any one else has yet shown any convincing reason for accepting these fragments and rejecting the rest of the Pythagorean writings, including the other fragments of Philolaos himself which come from the same source. I have stated the case already in my *Early Greek Philosophy* and need not restate it here. But it is interesting to see that Dr. Bauer has shown distinctly that these fragments cannot possibly be reconciled with the express statements of Aristotle about Pythagoreanism. The conclusion to which he comes (p. 191) is that in all probability Aristotle did not know the writings of Philolaos. In this it is easy to acquiesce, but surely the obvious conclusion is that the writings of Philolaos are a late forgery.

JOHN BURNET.

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A. Wreschner, *Methodologische Beiträge zu psychophysischen Messungen* (Schriften der Gesellschaft für psychologische Forschung, Heft ii., iii. Sammlung), Leipzig, J. A. Barth, 1898; London, Williams & Norgate, pp. vi., 238.

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# IX.—PHILOSOPHICAL PERIODICALS.

PHILOSOPHICAL REVIEW. Vol. vi., No. 5. **J. Rehmke.** 'Fundamental Conceptions regarding the Nature of Consciousness.' [Polemic against unconscious psychological processes. "Consciousness in the sense of a determination cannot be a particular form of a general determination, but can truly be only a universal determination;" so that mental processes are "the particular forms of consciousness". Man is "a peculiar conjunction of thing and consciousness-individual, *i.e.*, of body and soul". "This particular individual, *consciousness*, defines the subject-matter of psychology." There seem to be a few slips of translation.] **D. Irons.** 'The Nature of Emotion,' ii. [Criticism of current theories: Horwicz, James and Lange, Külpe, the Herbartians, Sully, Lehmann, Wundt, etc.] **E. B. McGilvary.** 'The Presupposition Question in Hegel's Logic.' [Hegel's "Logic presupposes the Phenomenology, and the Phenomenology presupposes ordinary consciousness with its sensuous cognition; and thus logic indirectly presupposes sensuous experiences. But it abstracts from the sensuous element in experience, because it has transcended the point of view from which the sensuous is regarded as an independent element standing over against thought. In logic the sensuous is considered only in so far as it has been intellectualised." But "the very nature of the task that logic sets before itself makes it necessary that it should begin with the conception that claims to be unanalysable, to be simple, to have no elements or (what is the same thing) no presuppositions". The choice lies between pure being and pure naught. Reasons for choice of former.] Discussion. **I. M. Bentley.** 'The Psychology of "The Grammar of Science".' [The 'Grammar' confuses epistemology with psychology; and the psychology it adopts is a superannuated system, wholly incapable of supporting the burden that science, according to the author, imposes upon it.] Reviews of Books. Summaries of Articles. Notices of New Books. Notes.

Vol. vi., No. 6. **J. H. Tufts.** 'Can Epistemology be Based on Mental States?' [The copy-theory of knowledge; its roots in philosophy and religion. Criticism: search for a test of the copy takes us to agnosticism; investigation of the self outside of which the real is supposed to be (the self of common life, of psychology, the logical subject, the self of metaphysics) leads to the conclusion "that there is no proper sense in which we can speak of reality as extra-mental or trans-subjective or outside consciousness". Kant shows us both the copy-theory and its antithesis: the theory that knowledge is "an interpretation of reality, or, better, reality interpreted". There are three such interpretations: the logical, the æsthetic, and the ethical.] **G. N. Dolson.** 'The Ethical System of Henry More.' [A good paper. More's system cannot be classified: there are in it traces of hedonism, intuitionism and (to a less extent) utilitarianism.] **J. Rehmke.** 'Experience.' [Psychological: polemic against pure empiricism, the view that "being and possible experience are co-extensive concepts," with its division of experience into outer and inner. Experience is the "immediate objective conscious content of the

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soul, which is mediated by impression on the part of an 'other'". Epistemological: polemic against the image-theory of experience. The true view is that "the soul is an individual, which as consciousness is aware of itself and others and distinguishes itself at the same time from others".] **D. Irons.** 'The Primary Emotions.' ["The primary emotions seem to be the following: satisfaction, dissatisfaction; anger; fear; ill-feeling, kindly feeling; repugnance; scorn, admiration."] Discussion. **J. R. Angell.** 'Thought and Imagery.' [Against Stout's doctrine of imageless thoughts. A valuable piece of introspective analysis.] Reviews of Books. Summaries of Articles. Notices of New Books.

Vol. vii., No. 1. **J. G. Schurman.** 'The Genesis of the Critical Philosophy.—I. Logical.' ["It was Kant's habitual aim, in every field of inquiry, to effect a synthesis of opposing theories." In philosophy he had before him dogmatism or rationalism, with its "pure knowledge derived from notions according to principles," and its rejection of sensible experience,—and scepticism or empiricism, with its declaration that "knowledge of the suprasensible is illusory," and "that no knowledge possesses universality and necessity". Criticism mediates between these two systems by showing that "reason is possible only through experience, and experience is possible only through reason". —Proof of the mediatising tendency by examination of Kant's attitude to the subject of knowledge, the object of knowledge and knowledge itself, its nature and limits.] **J. Watson.** 'The Metaphysic of Aristotle.—I. Idea of Metaphysic.' [Aristotle reaches a provisional definition of metaphysics, as the science of the first principles of reality, by a psychological analysis of the stages of knowledge, an interpretation of popular conceptions and a glance at the origin of philosophical speculation. Proceeding to define these principles, he finds that they are in the first instance the principles of substance. But substantiality, as the basal determination of the real, is the same with unity; and, as every science deals with correlative opposites, metaphysics "involves a discussion of the opposition of unity and plurality, and of the respective determinations which come under these, or must in some way be referred to them".] **J. B. Peterson.** 'The Empirical Theory of Causation.' [Hume and J. S. Mill are both inconsistent; for both—Mill explicitly—make cause to be that on which the effect is invariably and unconditionally (*i.e.*, necessarily) consequent. Both, too, have confounded the law of causation with that of uniformity. On the subjective side, Hume's theory of belief as vivacity of sense and memory, and James Mill's view of it as inseparable association are wrong. J. S. Mill rightly makes it ultimate; though he thinks that association may generate it. Study of instances disproves this position. Causation is, then, a simple unanalysable relation in the world around us, just as belief is primordial and unanalysable in our minds.] **S. W. Dyde.** 'Hegel's Conception of Crime and Punishment.' [Crime is, for Hegel, "the violation by the individual of abstract right, and punishment is the inevitable restoration of right". This, which Giddings calls the subjective or classical view, is opposed by the positive or objective ideas of modern sociology. Hegel's account is inadequate, since it fails to consider the agent as an organism and the crime as related to his whole habit of life. But sociology makes a worse mistake if it overlooks volition, if in its analysis of the individual it loses the individual.—When Hegel passes from abstract right to the state, he does not modify his conception. Yet we have, surely, both to punish the criminal for the sake of deterrence and to alter the social order to make crimes unattractive. But though Hegel never saw that "the criminal and society are

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jointly responsible for crime," the recognition of the fact is entirely in his spirit.] Discussion. **G. F. Stout.** 'Reply to Prof. Angell's Criticism of *Analytic Psychology*.' [Discussion of imageless apprehension. "Meaning must be regarded as a primordial fact of all consciousness that rises above the level of a sensation reflex. So far from being dependent on ideas, it is in the scale of evolution prior to the development of ideational consciousness."] Reviews of Books. Summaries of Articles. Notices of New Books. Notes.

PSYCHOLOGICAL REVIEW. Vol. v., No. 1. **J. M. Baldwin.** 'On Selective Thinking.' [(1) Material. "The thought variations by the supply of which selective thinking proceeds occur in the processes at the level of organisation which the system in question has already reached: a level which is thus the platform for further determinations in the same system." (2) Function. Selection has a double function: "first, the sort of intra-organic selection . . . which is a testing of the general character of a new experience as calling out the acquired motor habits of the organism; and, second, an extra-organic or environmental selection, which is a testing of the special concrete character of the experience as fitted, through the motor variations to which it gives rise, to bring about a new determination in the system in which it goes". (3) Criteria. These are "at first enforced only by the environment". "The persons about the thinker . . . are the control-factor in his higher selective thinking." The individual judgment becomes freer and freer "as progress is made in the 'systematic determination' which organised knowledge exhibits". (4) Interpretations. The utility criterion; Spencer's theory; organic selection; social heredity; sense of self.] **H. K. Wolfe.** 'Some Effects of Size on Judgments of Weight.' [Mass experiments, continued over four years. Wood and lead discs; lead discs and paper bags; brass cylinders. The paper is interesting in its suggestions of method and of the limitations of method; no attempt at analysis is made. Result: our ordinary comparison of weights is an exceedingly complex process, the probability being that the spatial functions of sight and touch have outrun or usurped the weight function of skin and tendons.] **E. B. Delabarre.** 'Studies from the Harvard Psychological Laboratory,' x. **F. M. Drury** and **C. F. Folsom.** 'Effect of Study for Examinations on the Nervous and Mental Condition of Female Students.' [Nervous condition unsteady, mental much improved.] **J. F. Crawford.** 'Studies from the Princeton Psychological Laboratory.—VIII. A study of the Temperature Sense. Preliminary Report.' [Experiments by transfer-method indicate that temperature sensitivity is distributed in continuous regions rather than in spots.] Discussion and Reports. **W. S. Monroe.** 'Social Consciousness in Children.' [Questionnaire returns, 1000 boys and 1200 girls aged seven to sixteen, on: What kind of a chum do you like the best?] **J. McK. Cattell.** 'The Reaction Time of Counting.' [References showing where the writer anticipated Warren.] Psychological Literature. New Books. Notes.

AMERICAN JOURNAL OF PSYCHOLOGY. Vol. ix., No. 2. **H. K. Wolfe.** 'Some Judgments on the Size of Familiar Objects.' [Experiments on reproduction of outline of coins and notes by some 1100 persons. Young children underestimate; adults overestimate coins of the shilling-size and larger; all underestimate small coins and notes. Reproduction is a function of the personality, and is subject to very great errors.—Further analysis is not attempted. The memory image is assumed, and the motor error not eliminated. The results are, therefore, rather suggestive than final.] **F. E. Bolton.** 'A Contribution to the Study of Illusions.

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—I. The Effect of Size upon Estimations of Weight.' [Weight affects size more than size weight. Comparison of lifting and lever-pressure (key-board) methods.] 'II. The Effect of Contour upon Estimations of Area.' [Negative result. Various optical illusions emerge during the experiments.—Both papers are timely and useful.] **G. V. Dearborn.** 'A Study of Imaginations.' [Account of work done by the ink-blot method. "There is evidence here that the laws of reproductive imagination are substantial laws, which may one day be reduced to words."] **E. C. Sanford.** 'The Vernier Chronoscope.' [Description of mechanical reaction-timer for class use.] **F. C. Sharp.** 'An Objective Study of some Moral Judgments.' [Student questionnaire on points of moral casuistry. Evidence of divergence and mediacy of moral judgments. "Martineau and Sidgwick are both right in what they affirm, wrong in what they deny."—An interesting inquiry, which should be continued.] Discussion. **H. M. Stanley.** 'Remarks on Tickling and Laughing.' [*Cf.* vol. ix., No. 1. Ticklishness implies tentacular experience; pleasure in tickling raises the whole question of the play activity. Laughter is a mode of articulate expression. Critique of the questionnaire method.] Psychological Literature. Notes and News.

REVUE PHILOSOPHIQUE. January, 1898. **A. Fouillée.** 'Les facteurs des caractères nationaux.' [Every nation has a psychical individuality of its own which, at the present stage of evolution, is mainly determined by adaptation to the *moral* and *social* environment. The Darwinian conception of history is incomplete because it neglects the more or less immediate adaptation of the human brain to new ideas. While the environment modifies the animal, man modifies the environment.] **G. Dumas.** 'L'état mentale d'Auguste Comte,' I. [Mainly biograraphical. Discusses the question of Comte's sanity and the relation of his "subjective method" to his general point of view.] **P. Malapert.** 'La perception de la ressemblance.' [The perception of resemblance has been said to be (*a*) a concept of the understanding (because it is non-figurable. But this is equally true of, *e.g.*, the sensation of satisfied hunger). (*b*) Derivable from the perception of difference. (Bain and Spencer. According to the latter the relation of resemblance consists of two relations of difference which neutralise each other. But, in that case, there would be nothing left. There must be a consciousness not only of the changes, but also of their reciprocal neutralisation.) Writer concludes that the perception of resemblance is irreducible to any mere elementary process, and that it is an immediate intention arising from the consciousness that, in the case of similar objects, *attention is similarly adapted.* 'Si le sujet trouve du semblable c'est qu' il se trouve semblable.'] 'Le Congrès de Moscou.' Analyses et comptes rendus. Revue (MIND).

February, 1898. **Evellin.** 'Philosophie et Mathématique: l'infini nouveau.' [Protest against recent innovations in use of mathematical terms.] **G. Séailles.** 'Un philosophe inconnu: Jules Sequies.' [Searching for a *première vérité*, on which to base the sciences and an enlightened philosophy and theology, Sequies found it in the freedom of the will.] **G. Dumas.** 'L'état mental d'Auguste Comte,' II. [Comte's mysticism.] Revue critique (*L'année philosophique*). Analyses et comptes rendus.

March, 1898. **Fr. Paulhan.** 'L'invention.' [On analysing the process of invention or intellectual creation we find that it consists, in all cases, of the production of a new "synthetic idea," by means of a combination of elements already present in the mind with a new and vitalising element, the appearance of which is more or less a matter of

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chance.] **A. Schinz.** 'La moralité de l'enfant.' [Moral education has not kept pace with physical and intellectual education owing to lingering belief in doctrine of "moral sense". This theory is contradicted by facts and leads to conclusions which cannot be accepted. Conscience only appears at a certain stage of intellectual development. Morality is relative. Only those actions are moral to which we are prompted by a *reasonable* motive. Hence the child must be taught *why*, under any given circumstances, certain acts are moral and others immoral.]

REVUE DE MÉTAPHYSIQUE ET DE MORALE. 5e Année, No. 6. November, 1897. **F. Rauh.** 'La conscience du devenir.' [Instead of an *analysis*, M. Bergson (whose theory of consciousness is here criticised) has really given a *description* of consciousness. M. Rauh proposes to pursue the method which Bergson thinks he has, but has not, followed, of distinguishing qualitatively, and analysing, the elements of the consciousness of *becoming*.] **L. Weber.** 'L'idéalisme logique.' ["The most indubitable of all propositions respecting existence is that affirming existence in general. Something exists. This admits of no doubt; for to deny that anything exists would imply affirmation of the negative proposition at all events. Existence which thus posits itself absolutely, and revolting against all attempts at its negation, revives afresh after all such attempts, is *logical* existence, or being." H. Spencer's affirmation of the existence of the 'Unknowable' is criticised.] **E. Halévy.** 'L'explication du sentiment.' [The physiological theory of the emotions, to which William James and Lange have given their name, has not yet, in France, become a subject of methodical investigation. Some physiologists have adopted, others have discussed it. Ribot's attitude towards it is not easily ascertained. The present writer here submits it to philosophic criticism.] Études critiques, etc.

6e Année, No. 1. January, 1898. **H. Poincaré.** 'La mesure du temps.' [The article concludes: "We have no direct intuition of simultaneity any more than of the equality of two parts of duration. If we think otherwise, this is an illusion. We supply its place by certain rules which we almost always apply without rendering any account of them. What are these rules? No *general* rule, no *exact* rule; only a multitude of small rules, applicable to each particular case. They are not any of them necessary; we might exercise our ingenuity in inventing others equally good. We choose them, not because they are true, but because they are convenient. We might thus summarise them: the simultaneity of two events or the order of their succession, the equality of two durations, should be so defined that the statement of the laws of nature may be as simple as possible. In other words, all those rules, all those definitions, are but the outcome of unconscious opportunism."] **G. Tarde.** 'Les lois sociales.' [Treats of the application of science and scientific methods for the ascertainment of social laws.] **F. Rauh.** 'La conscience du devenir.' [This article—sequel and conclusion of that in the November *Revue*—continues the criticism of M. Bergson. The latter has maintained a skilfully constructed theory of realism. M. Rauh opposes it with a theory which, he confesses, 'has its own difficulties'. But if one philosophises, one should (not like Bergson merely *describe*, but) *analyse* one's subject-matter, the facts of successive consciousness, and present them in their qualitative purity. "If philosophy has a function proper to it, it is that of raising us from the world of space and time to an ideal order of things theoretical or practical, etc."] Études critiques, etc.

REVUE NÉO-SCOLASTIQUE. No. 16. Fifty years ago the cellular composition of living things was still an open question. A little later came the

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general acceptance of the theory, and almost simultaneously with this the discovery represented by the formula, *omnis cellula a cellula*. This formula, as **M. Lebrun** ('Les Nucléoles Nucléiniens') points out, till recently considered ultimate, is now making room for the still more radical formula, *omne centrosoma a centrosomate*. **M. de Munnynck** ('La Section de Philosophie au Congrès Scientifique de Fribourg') passes in summary review the philosophical papers read at the Fribourg Congress, and remarks somewhat maliciously of one of them that possibly the connecting links were to be found in the portions, for want of time, left unread; that, in any case, it was not easy to discover in what was read a sequence from principles to conclusions. **M. Pasquier** ('Les Hypothèses Cosmogoniques') explains the fundamental condition which a cosmogonical hypothesis, if it is to be reckoned valid, must satisfy; compares together in this connexion the nebular hypothesis and the meteoric hypothesis, advocated by Tait and Lockyer, and decides, though with some reservations, in favour of the nebular hypothesis. **M. Nys** ('La Notion de Temps d'après Saint Thomas d'Aquin'), while admitting that the question, whether time once past can again revert, is at first sight a purely idle one, takes occasion, however, from the recent publication of a work 'on the reversibility of all purely mechanical movement' by M. Breton, to discuss the question. M. Nys decides that no movement is capable of reversion, since every movement possesses a peculiar and essentially transient individuality. **M. Wulf** ('Quelques formes contemporaines du Panthéisme') examines the systems of Janet and Vacherot, and compares them with the hybrid synthesis of Krause, the disciple of Schelling, which has received the name of *Panentheism*. **M. Mercier** ('La psychologie de Descartes et l'anthropologie scolastique'), continuing his studies in Descartes, maintains that the Cartesian spiritualism gave birth to the ontologism of Malebranche and the pantheism of Spinoza on the one hand, and to idealism on the other; while to the sensualism of Descartes, acted upon by "the two-fold influence of philosophy and science," he ascribes the positivist character which distinguishes contemporary idealism.

L'Année Psychologique. Par Alfred Binet. 3me Année. Paris: Schleicher Frères, 1897. Pp. 825. **Th. Ribot.** 'L'Abstraction des émotions.' [Abstraction, not association; instance, complex emotion excited by thought of a new country; frequency in "symbolist" school; rendered possible by affective memory, and occurs in individuals in whom this is well marked.] **A. Binet** et **J. Courtier.** 'Les changements de forme du poul capillaire aux differentes heures de la journée. Les effets du travail musculaire sur la circulation capillaire. Effets du travail intellectuel sur la circulation capillaire. Influence de la vie émotionnelle sur le cœur, la respiration et la circulation capillaire.' [Four papers showing influence of various factors on the capillary circulation. Used plethysmograph of Hallion and Comte. Influence of muscular work on dicrotism. Differences between effects of muscular and intellectual work. In all emotions in most individuals vaso-constriction, quickening of heart beat and of respiration, and increase in size of thorax; in some individuals slowing of heart with pain and grief. Suggestion of influence of quality of emotion on capillary pulse.] **A. Binet** et **N. Vaschide.** 'Influence du travail intellectuel, des émotions et du travail physique sur la pression du sang.' [Used Mosso's sphygmomanometer; importance of varying counter-pressure; distinct effects with one counter-pressure may be completely absent with another; strong sensory excitation, intellectual work, emotions pleasant and painful, an animated conversation and muscular work, all produced a rise of blood pressure.] **V. et C. Henri.** 'Enquête

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sur les premiers souvenirs de l'enfance.' [Results of questionnaire. Date of earliest memory, its subject and relation to mental imagery; conditions of recollection.] **N. Vaschide.** 'Sur la localisation des souvenirs. La localisation dans les expériences sur la mémoire immédiate des mots.' [Study of processes by means of which order of impressions (words) remembered; localisation, immediate or mediate, depending on association, reasoning, etc.] **V. Henri.** 'Nouvelles recherches sur la localisation des sensations tactiles. L'expérience d'Aristote.' [Aristotle's experiment an instance of a general law that two points on crossed fingers are localised both as regards direction and distance in the same way as is the normal position.] **V. Henri.** 'Étude sur le travail psychique et physique.' [Criticism of methods hitherto used in measurement of mental work; new methods suggested; description and criticism of results hitherto obtained; detailed criticism of two works of the Kraepelin school; that many conclusions of this school are based on differences so small as to lie within limits of probable error; bibliography.] **A. Binet.** 'Réflexions sur le paradoxe of Diderot.' [Based on opinions of nine leading French actors; concludes paradox not true; that the best actors experience the emotions of the characters they represent.] **A. Binet.** 'Psychologie individuelle. La description d'un objet.' [Two series of observations; description of a picture by children; of a cigarette by three groups of different ages; existence of types; observing, description; erudite (*i.e.*, those who write what they know of the objects, not what they see), emotional and idealist.] Analyses. Bibliographie.

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Bd. xv., Heft 5, 6. **J. von Kries.** 'Ueber die absolute Empfindlichkeit der verschiedenen Netzhauttheile im dunkeladaptirten Auge.' [(1) Experiments with bluish-white light. Practical constancy of sensitivity over a central space of 2°; very rapid rise to 4°, in either direction from the centre; then slower increase; and finally constancy. (2) Red light; sensitivity greatest in the fovea; declines to about one half at 10° on either side. Blue light; very slight increase up to 1°, very rapid up to 2·5°, on either side of the centre. Yellow light; similar curve, but ordinates much lower. Both the yellow and the blue curves rise higher on the nasal than on the temporal side of the visual field. Theoretical discussion: rod-valence and cone-valence of the lights; extent of rod-free area; foveal blue vision, etc.] Litteraturbericht: Bibliographie der psychophysischen Litteratur des Jahres 1896. [2367 titles, as against 1588 for 1895. In spite of the late appearance of the bibliography, it shows many signs of hasty preparation. One psychologist, *e.g.*, appears in the index under two different names, and is wrongly numbered in both instances.]

Bd. xvi., Heft 1, 2. **M. Meyer.** 'Zur Theorie der Differenztoene und der Gehoersempfindungen ueberhaupt.' [Difference tones are of subjective origin. Rules for two-clangs, (1) where the interval is not greater than a semitone, (2) where it lies between this and the octave, (3) where it exceeds the octave. New observations (eight experiments). Critique of Ebbinghaus' modification of the resonator theory. Facts against Helmholtz: the mistuned octave, beats, the anatomy of the cochlea, Bezold's experiments. New theory: a push of the stirrup and the consequent movement of the endolymph mean a bellying-out of the membrane towards the scale of the tympanum; and this reaches further in, the more intensive the tone. A pull on the stirrup has the converse effect. The moved membrane returns but slowly, of itself, to its old position; it does not swing beyond the position from which it is moved; the communication at the tip of the cochlea is a safety-valve. Discussion

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(with figures) of twelve intervals.] **J. Schwertschlager.** 'Ueber subjektive Gesichtsempfindungen und -erscheinungen.' [Bilateral hyperæmia, leading to a unilateral detachment of the retina. (1) The intrinsic light; the field was composed of a mosaic of light points, with dark interspaces. (2) Bright, moving dots; flickering 'sheaves'; travelling rings. The dots are due, probably, to sudden change of blood pressure; the flickering to maxima and minima (reflex inhibitions) of excitation; the ring-shape to the pressure of the vessel-rings upon the enclosed parts of the retina. (3) Colour phenomena in a scotoma produced by extravasation of a blood-drop in the macula. (4) Hallucinations unilateral; for the most part involuntary; their perfect semblance of reality; comparison with the hallucinations of insanity. (5) Surrogates for vision: hearing, touch, pressure, temperature, smell.] **C. Ehrenfels.** 'Die Intensitaet der Gefuehle. Eine Entgegnung auf Franz Brentano's neue Intensitaetslehre.' [Brentano defines psychical intensity as the relative filling-out of a sense-space by its sensation; intensity is a "measure of density". The intensity of the mental act is thus equal to the intensity of the object of the act,—that of sensing to the intensity of the sensed, etc. This view breaks down at once when tested by *judgment*. What of the sense *feelings*? We might say that parts of the sense contents are simply sensed, parts both sensed and felt; *i.e.*, apply the theory within a single sense field. This leads to absurdities. Or we may regard what is called the object of feeling as a causally connected, not 'intentional' object; if we make organic sensations the intentional object, we save the theory in the sphere both of the sense and of the intellectual feelings. Granting ideation and feeling to Brentano, then, but refusing to allow him judgment, what shall we say to the whole conception? His deduction is astray; psychical intensity should, according to it, either not exist at all, or parallel not the density but the factual extensity of the corresponding physical phenomenon. Experience negatives the latter alternative. To uphold the former, we must reduce pleasantness and unpleasantness to sensations. But then they must exist, like 'red,' as physical phenomena, which need not be psychical. Is this reasonable? Lastly, Brentano's theory comes to grief when confronted with the concept of 'indivisible magnitude'.] **F. Hillebrand.** 'In Sachen der optischen Tiefenlocalisation.' [(1) The present position of the question: Wundt, Hillebrand, Dixon and Arrer. (2) 'Indefinite' localisation is variable localisation, *i.e.*, that given to an object, whose place is not determined by external conditions, under pressure of variable internal conditions. (3) Relative localisation is possible though the absolute be 'indefinite'. (4) Voluntary change of accommodation influences judgments of 'nearer' and 'further'. (5) Critique of Arrer's method: the use of threads, and (6) the performance of binocular experiments. (7) Defence of Hering: the binocular localisation of the nuclear point, and (8) the three space-feelings. The nuclear point is localised by the double-image mechanism, the subject's body giving the point of departure; it is only physiologically the zero point of localisation in depth; psychologically it has a positive value, like all other points. (These two sections are extremely important for the theory of space perception.) (9) Delicacy of movement, under visual control, does not necessarily mean a corresponding delicacy of movement sensations.] **H. Ebbinghaus.** 'Bemerkung zu der Abhandlung M. Meyer's "Zur Theorie der Differenztoene u. s. w."' [Reply to the criticism passed by Meyer upon the writer's use of Bezold's experiments in his modified resonator theory.] Litteraturbericht.

Bd. xvi., Heft 3. **R. Greeff.** 'S. Ramon y Cajals neuere Beitraege zur Histologie der Retina.' [Development of certain retinal cells;

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association-spongioblasts in the bird retina; centrifugal fibres in the bird retina; stellate cells in the layer of bipolar cells; scattered spongioblasts; rods and cones in the bird retina; anastomosis of the protoplasmic ramifications.] **R. A. Reddingius.** 'Der Akkommodationsfleck.' [Proof by use of homatropin that the 'accommodation spot' depends upon intraocular and not upon extraocular pressure. Description of the spot in the author's right and left fields.] **H. Wegener.** 'Ueber recht- und ruecklaeufige Stirnschrift.' [Wolff based his theory of the importance of motor ideas in the case of Voit upon the fact that Voit's forehead writing was not mirror writing. The author shows that although mirror writing is favoured by young children, adults write oftener in the ordinary way. Hence Voit is not abnormal in this regard, and the optical word-image probably plays the largest part in the origination of his speech.] **M. Meyer.** 'Zu Ebbinghaus' "Bemerkung".' [Further objections to Ebbinghaus' use of Bezold's experiments, and to his modified resonator theory.] Besprechungen. [Witasek on Hoefler.] Litteraturbericht. 'Zur Abwehr.' [Reply to criticism by Wittstock; counter-reply by Andreae.] 'Entgegnung.' [Reply by Wollny; counter-reply by Cohn.]

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. Jahrgang. 1897. Bd. cx., Heft 2. September. **W. Lutoslawski.** 'Theorie der Stylometrie auf die Platonische Frage angewendet.' [This paper is a reproduction, by Prof. Dr. P. Meyer, of chap. iii. of Lutoslawski's work *On the Origin and Growth of Plato's Logic*. The paper was prepared from the proof sheets of the then unpublished work for the benefit of German readers, with the permission of the London publishers, Messrs. Longmans, Green & Co. Great admiration is expressed here (as by Dr. Gomperz in the *Zeitschrift* of last December) for the work done by Prof. Lewis Campbell in the rectification of Platonic chronology by minute observation of the growth and development of Plato's style. The interest of this paper is mainly philological, but may well subserve that of Platonic philosophy.] **Jonas Cohn.** 'Beiträge zur Lehre von den Wertungen.' [The article is divided into two parts, of which the first discusses the function to be ascribed to science in its relation to the determination of values—to what we may call the problem of axiology; while the second attempts a formal, detailed, and fundamental account of the method of determining values in all provinces of axiology. "Men long to attain an ideal of *repose;* but beside this longing there is another, as deep in their hearts, that for activity—a struggling, restless activity. Every aim ushers in a new struggle, and every struggle has its new aim. Such is the dilemma of life. Hence Goethe's *Faust* is the world-poem of Western culture—perhaps of humanity."] Recensionen, etc.

Jahrgang. 1897. Band cxi., Heft 1. November. **Johannes Volkelt.** 'Das Recht des Individualismus.' [The foundation of all science and of all cognition is for each the knowledge of his own conscious processes. The *data* which we employ for understanding the outer world and all reality are wholly derived from our own individual experience. The psychologist has his only *immediate* object of investigation in his own conscious states. The psychical development of the individual, however, is effected under the influence of a collective life in which he shares. Thus '*individual*' passes into '*social*' psychology. Analogous observations follow in reference to ethics. Ethical individualism is the condition of the realisation of ethico-social aims. The hindrances to individualism.] **Ludwig Busse.** 'Die Bedeutung der Metaphysik für die Philosophie und die Theologie.' ["Philosophy," said Lotze, "is a mother whose heart is broken by the ingratitude of her children." Once it was all in all: from

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its bosom sprang the sciences. But when it had set up house, the daughters rebelled against their mother; disowned her and refused to have any more to do with her. Though things have lately improved with her, still she has to struggle for bare life. A review of the history of metaphysics follows, with an account of the efforts made by Kant and Hegel to set philosophic speculation on a sound footing. Scepticism, subjectivism and criticism, if unmetaphysical, are unsound. It is vain for theology to endeavour to maintain itself on an unmetaphysical basis.] **C. Lülmann.** 'Leibniz' Anschauung vom Christentum.' [The historical position of Christianity: its essential content: faith, reason and revelation. God's power and man's action: the special problem of Christianity. These may serve as specimens of the topics on which the article dwells. The relation between the philosophy of Leibniz and Christianity is stated.] **Emil Pfennigsdorf.** 'Bewusstsein und Erkenntniss.' [This article is written with special reference to the Philosophy of Teichmüller.] **J. Golling.** 'L. Campbell über Platons Sprachgebrauch im Sophistes und Politicus.' [One more proof or illustration of the deep hold which Prof. Campbell's fruitful speculations as to the style and phraseology of the Platonic Dialogues have *at last* taken on the minds of German scholars and philosophers.] Recensionen, etc.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Jahrg. xxii., Heft 1. **K. Groos.** 'Ueber Hör-Spiele.' [Distinguishes receptive and productive plays of the sense of hearing. Under the first head treats of the pleasure of mere noise, of rhythm, and of melody. Rhythm throws the mind into a quasi-hypnotic condition, in which it is specially susceptible to all æsthetic impressions. Productive plays include singing, instrumental music, and the like.] **Fr. Carstanjen.** 'Der Empiriokritizismus' (Erster Artikel). [Accuses Wundt of general misunderstanding and of special misstatement. He confuses criticism from an empirical standpoint with criticism of experience.] **A. Riehl.** 'Bemerkungen zu dem Problem der Form in der Dichtkunst' (Zweiter Artikel). [That unity and completeness of view, which in the case of a picture is obtained by representing objects as if seen at a distance, is produced in poetry by representing objects as they appear in the time-perspective of memory.] Besprechungen, etc.

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. Band iv., Heft 1. **Emil Koch.** 'Richard Avenarius' Kritik der reinen Erfahrung,' I. [A clear exposition.] **Hans Kleinpeter.** 'Die Entwicklung des Raum- und Zeitbegriffes in der neueren Mathematik und Mechanik und seine Bedeutung für die Erkenntnistheorie.' [The space of geometry is partly subjective construction, and partly involves an empirical factor. The possibility of non-Euclidean systems shows the presence of the empirical factor.] **J. Baumann.** 'Ueber Ernst Mach's philosophische Ansichten.' [A vindication of the categories of cause and substance as against Mach's phenomenalism.] **Karl Ueberhorst.** 'Das Wesen der Aufmerksamkeit und der geistigen Sammlung.' [To collect one's mind is to pursue a single end to the exclusion of others. Attention is a function much more limited in scope. It is the attempt rightly to apprehend a given content of perception or thought.] **Max Dessoir.** 'Beiträge zur Aesthetik.' [Science and art two different modes of transforming ordinary experience so as to satisfy ordinary human needs. Science is essentially analytic, art synthetic.] *Jahresbericht* ueber die Erscheinungen auf dem Gebiete der systematischen Philosophie: I. **F. Tönnies.** 'Jahresbericht üeber Erscheinungen der Sociologie aus den Jahren 1895 und 1896.' II. **B. Bosanquet.** 'Philosophy in the United Kingdom in 1896.'

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PHILOSOPHISCHES JAHRBUCH. Bd. x., Heft 4. **F. X. Pfeifer.** 'Ueber den Begriff der Auslösung, etc.' [In this, the first of two articles, the writer criticises certain definitions of the word 'Auslösung' (a setting-free), and gives his own: a process by which a potential energy is brought into activity by means of an energy which is actual; and he passes in review various processes of sensation to prove it.] **V. Frins.** 'Zum Begriffe des Wunders.' (Conclusion.) [Creation, justification, etc., though impossible to any save God, are not properly miracles; these must be restricted to marvels which strike the senses, and which are such that none but God can produce them; thus real marvels may be false miracles, if they proceed from evil spirits. Miracles are not contrary to nature, but to its usual course.] **P. B. Adlhoch.** 'Der Gottesbeweis des hl. Anselm.' [This article, concluding the series, shows to what class of argument St. Anselm's demonstration belongs, sums up the whole controversy, and replies to a number of objections against it.] **G. Grupp.** 'Die Grundlage des Glaubens.' [Neither in nature nor in history is there any indubitable objective proof of what is believed by faith; what is indubitable is its credibility alone. Only by means of a subjective criterion can its truth be seen. This position is maintained against adverse criticism and explained.]

RIVISTA ITALIANA DI FILOSOFIA. September-October. **L. Ambrosi.** 'Le Creazioni dello Spirito nella Conoscenza Intellettiva.' [This article traces the growth of intellectual activity out of "intuition" (or perhaps rather feeling or sensation) up to the Absolute from the point of view of Idealism or, possibly, Neo-Kantianism. The activity of the Spirit tends (*a*) to the formation and classification of concepts; (*b*) to the co-ordination of spatial co-existences; (*c*) to the co-ordination of the laws of temporal successions by observation, experiment and hypothesis. The use of hypotheses is ingeniously adduced as a proof of mental unity and a refutation of associationalism.] **A. Codara.** 'Seneca Filosofo e S. Paolo.' [This article starts from the apocryphal letters of Seneca and St. Paul to discuss the possibility of either having been influenced by the other. (*a*) The evidence in favour of the reputed friendship of Seneca and St. Paul at Rome is shown to be inconclusive. (*b*) Owing to the difficulty of determining the date of Paul's arrival at Rome, and for other reasons, it is almost impossible to reach a definite conclusion as to whether the two men ever met or not, though the declaration of Aubertin that such a meeting was impossible is shown to be an "exaggeration". (*c*) Therefore the question really becomes one of internal evidence, drawn from the genuine works of each, the tendency of which goes to prove that each was uninfluenced by the other. (To be continued.)] **A. Covotti.** 'Il Cósmos Noetós di Plotino nella sua Posizione Storica.' [The first part of an article on the relation of νοῦς to λόγος and the sensible world.] **V. Alemanni.** 'La Coscienza Fisica.' Bollettino Pedagogico e Filosofico.

## X.—NOTE.

### ARISTOTELIAN SOCIETY AND "MIND".

As we are informed that mistaken ideas have been entertained concerning the connexion between MIND and the Aristotelian Society, it may be as well to explicitly emphasise three points: (1) That papers read before the Aristotelian Society are published in MIND and in MIND only; (2) that only select papers are so published; (3) that no good MS. from any source will be rejected.

EDITOR (G. F. S.).

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# MIND

## A QUARTERLY REVIEW

OF

## PSYCHOLOGY AND PHILOSOPHY.

### I.—THE ESSENCE OF REVENGE.[1]

BY EDWARD WESTERMARCK.

IN his remarkable work, *Ethnologische Studien zur ersten Entwicklung der Strafe*, Dr. S. R. Steinmetz has made the feeling of revenge the object of an investigation which seems to deserve more attention than has hitherto been bestowed upon it by psychologists. Not only do his *Studien* contain one of the very few attempts ever made by a specialist to elucidate a general psychical phenomenon by means of ethnological facts; but the problem he discusses is of wide-extending importance, bearing, as it does, not only directly upon the question of revenge, but, also, indirectly upon the explanation of the most prominent element in the moral consciousness. It will be the object of the present article to take up this problem afresh, not indeed to give anything like a general psychology of revenge, still less to deal with it as a social phenomenon, but to survey what the available facts really seem to teach us regarding its essence.

The ultimate conclusions at which Dr. Steinmetz has arrived are these: Revenge is essentially rooted in the feeling of power and superiority. It arises consequently upon the experience of injury, and its aim is to enhance the "self-feeling" which has been lowered or degraded by the injury suffered. It answers this purpose best if it is directed against the aggressor himself, but it is not essential to it that it should take any determinate direction, for, *per se* and originally, it is "undirected" and unlimited.

Strictly speaking, this theory is not new. At least Dr.

[1] Read before the Aristotelian Society.



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Paul Rée, in his book, *Die Entstehung des Gewissens*, has pronounced revenge to be a reaction against the feeling of inferiority which the aggressor impresses upon his victim. The injured man, he says, is naturally reluctant to feel himself inferior to another man, and consequently strives, by avenging the aggression, to show himself equal or even superior to the aggressor.[1] But Dr. Steinmetz has elaborated this theory with an independence and a fulness which make any question of priority quite insignificant.

The first stage, he says, through which revenge passed within the human race was characterised by a total, or almost total, want of discrimination. The aim of the offended man was merely to raise his injured "self-feeling" by inflicting pain upon somebody else, and his savage desire was satisfied whether the man on whom he wreaked his wrath was guilty or innocent.[2] No doubt, there were from the outset instances in which the offender himself was purposely made the victim, especially if he was a fellow-tribesman; but it was not really due to the feeling of revenge if the punishment was inflicted upon him, in preference to others. Even primitive man must have found out that vengeance directed against the actual culprit, besides being a strong deterrent to others, was a capital means of making a dangerous person harmless. However, Dr. Steinmetz adds, these advantages should not be overestimated, as even the indiscriminate revenge has a deterring influence on the malefactor.[3] In early times, then, vengeance, according to Dr. Steinmetz, was in the main "undirected".

At the next stage it becomes, he says, somewhat less indiscriminate. A proper victim is sought for even in cases of what we should call natural death, which the savage generally attributes to the ill-will of some foe skilled in sorcery;[4] though indeed Dr. Steinmetz doubts whether in such cases the unfortunate sufferer is really supposed to have committed the deed imputed to him.[5] At all events, a need is felt of choosing somebody for a victim, and "undirected" vengeance gradually gives way to "directed" vengeance. A rude specimen of this is the blood-feud, in which the individual culprit is left out of consideration, but war is carried on against the group of which he is a member, either his

[1] Rée, *Die Entstehung des Gewissens*, § 14, p. 40.

[2] Steinmetz, *Ethnologische Studien zur ersten Entwicklung der Strafe* (Leiden, 1894), vol. i., pp. 355, 356, 359, 361.

[3] *Ibid.*, vol. i., p. 362.

[4] *Ibid.*, vol. i., p. 356 *sq.*

[5] *Ibid.*, vol. i., p. 359 *sq.*

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family or his tribe. And from this system of joint responsibility we finally come, by slow degrees, says Dr. Steinmetz, to the modern conception, according to which punishment should be inflicted upon the criminal and nobody else.[1] Dr. Steinmetz believes that the *vis agens* in this long process of evolution lies in the intellectual development of the human race: man found out more and more distinctly that the best means of restraining wrongs was to punish a certain person, *viz.*, the wrong-doer.[2] On this utilitarian calculation our author lays much stress in the latter part of his investigation; whereas in another place he observes that a revenge which is directed against the offender is particularly apt to remove the feeling of inferiority, by effectually humiliating the hitherto triumphant foe.[3]

In this historical account the main points of interest are the initial stage of "undirected" vengeance, and the way in which such vengeance gradually became discriminate. If, in primitive times, a man did not care in the least on whom he retaliated an injury, then of course the direction of his vengeance could not be essential to the revenge itself, but would be merely a later appendix to it. Now the question is, what evidence can Dr. Steinmetz adduce to support his theory? Of primitive man we have no direct experience; no savage people now existing is a faithful representative of him, either physically or mentally. Yet however greatly the human race has changed, primitive man is not altogether dead. Traits of his character still linger in his descendants; and of primitive revenge, we are told, there are sufficient survivals left.[4]

Under the heading "Perfectly Undirected Revenge," Dr. Steinmetz sets out several alleged cases of such so-called survivals.[5] 1. An Indian of the Omaha tribe, who was kicked out of a trading establishment which he had been forbidden to enter, declared in a rage that he would revenge himself for an injury so gross, and, "seeking some object to destroy, he encountered a sow and pigs, and appeased his rage by putting them all to death". 2. The people of that same tribe believe that if a man who has been struck by lightning is not buried in the proper way, and in the place where he has been killed, his spirit will not rest in peace, but will walk about till another person is slain by lightning and laid beside him. 3. At the burial of a Loucheux Indian, the

[1] Steinmetz, *Ethnologische Studien zur ersten Entwicklung der Strafe* (Leiden, 1894), vol. i., p. 361.

[2] *Ibid.*, vol. i., pp. 358, 359, 361 *sq.*

[3] *Ibid.*, vol. i., p. 111.

[4] *Ibid.*, vol. i., p. 364.

[5] *Ibid.*, vol. i., p. 318 *sqq.*

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relatives sometimes will cut and lacerate their bodies, or, as sometimes happens, will, "in a fit of revenge against fate," stab some poor, friendless person who may be sojourning among them. 4. The Navajoes, when jealous of their wives, are apt to wreak their spleen and ill-will upon the first person whom they chance to meet. 5. The Great Eskimos, as it is reported, once after a severe epidemic, swore to kill all white people who might venture into their country. 6. The Australian father, whose little child happens to hurt itself, attacks his innocent neighbours, believing that he thus distributes the pain among them and consequently lessens the suffering of the child. 7. The Brazilian Tupis ate the vermin which molested them, for the sake of revenge; and if one of them struck his foot against a stone, he raged over it and bit it, whilst, if he were wounded with an arrow, he plucked it out and gnawed the shaft. 8. The Dacotahs avenge theft by stealing the property of the thief or of somebody else. 9. Among the Tshatrali (Pamir), if a man is robbed of his meat by a neighbour's dog, he will, in a fit of rage, not only kill the offending dog, but will, in addition, kick his own. 10. In New Guinea the bearers of evil tidings sometimes get knocked on the head during the first outburst of indignation evoked by their news. 11. Some natives of Motu, who had rescued two shipwrecked crews and safely brought them to their home in Port Moresby, were attacked there by the very friends of those they had saved, the reason for this being that the Port Moresby people were angry at the loss of the canoes, and could not bear that the Motuans were happy while they themselves were in trouble. 12. Another story from New Guinea tells us of a man who killed some innocent persons, because he had been disappointed in his plans and deprived of valuable property. 13. Among the Maoris it sometimes happened that the friends of a murdered man killed the first man who came in their way, whether enemy or friend. 14. Among the same people, chiefs who had suffered some loss often used to rob their subjects of property in order to make good the damage. 15. If the son of a Maori is hurt, his maternal relatives, to whose tribe he is considered to belong, come to pillage his father's house or village. 16. If a tree falls on a Kuki his fellows chop it up, and if one of that tribe kills himself by falling from a tree the tree from which he fell is promptly cut down. 17. In some parts of Daghestan, when the cause of a death is unknown, the relatives of the deceased declare some person chosen at random to have murdered him, and retaliate his death upon that person.

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I have been obliged to enumerate all these cases for the reason that a theory cannot be satisfactorily refuted unless on its own ground. I may confess at once that I scarcely ever saw an hypothesis vindicated by the aid of more futile evidence. The cases 7 and 16 illustrate just the reverse of "undirected" revenge, and, when we take into consideration the animistic belief of savages, present little to astonish us. In case 17 the guilt is certainly imputed to somebody at random, but only when the culprit is unknown. Cases 1, 4, 10 and 12 and perhaps also 11, imply that revenge is taken upon an innocent party in a fit of passion ;—in cases 1 and 12 the offender himself cannot be got at, in case 10 the man who is knocked on the head appears for the moment as the immediate cause of the grief or indignation evoked, while case 11 exhibits envy combined with extreme ingratitude. In case 9 the anger is chiefly directed against the "guilty" dog, and against the "innocent" one evidently by an association of ideas. Cases 8 and 14 illustrate indemnification for loss of property, and in case 8 the thief himself is specifically mentioned first. In case 15 the revenging attack is made upon the property of those people among whom the child lives, and who may be considered responsible for the loss its maternal clan sustains by the injury. Case 6 merely shows the attempt of a superstitious father to lessen the suffering of his child. As regards case 5, Petitot, who has recorded it, says expressly that the white people were supposed to have caused the epidemic by displeasing the god Tornrark.[1] Case 2 points to a superstitious belief which is interesting enough in itself, but which, so far as I can see, is without any bearing whatever on the point we are discussing. Case 3 looks like a death-offering. The stabbing of an innocent person is mentioned in connexion with, or rather as an alternative to, the self-laceration of the mourners, which last undoubtedly has a sacrificial character. Moreover, there is in this case no question of a culprit. In case 13, finally, the idea of sacrifice is very conspicuous. Dr. Steinmetz has borrowed his statement from Waitz, whose account is incomplete. Dieffenbach, the original authority, says that the custom in question was called by the Maori *taua tapu*, *i.e.*, sacred fight, or *taua toto*, *i.e.*, fight for blood. He describes it as follows: "If blood has been shed, a party sally forth and kill the first person they fall in with, whether an enemy or belonging to their own tribe; even a brother is sacrificed. If they do not fall

[1] Petitot, *Les Grands Esquimaux*, p. 207 *sq.*

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in with anybody, the *tohunga* (that is, the priest) pulls up some grass, throws it into a river, and repeats some incantation. After this ceremony, the killing of a bird, or any living thing that comes in their way, is regarded as sufficient, provided that blood is actually shed. All who participate in such an excursion are *tapu*, and are not allowed either to smoke or to eat anything but indigenous food."[1]

There can be no doubt that this ceremony was undertaken in order to appease the enraged spirit of the dead.[2] The question, however, is, why was not his death avenged upon the actual culprit? To this Dr. Steinmetz would answer that the deceased was thought to be indiscriminate in his craving for vengeance.[3] The "sacred fight" of the Maori, however, only seems to illustrate the impulsive character of anger in connexion with a superstitious belief. From Dieffenbach's description of it, it is obvious that the relatives of the slain man considered it to be a matter of paramount importance that blood should be shed immediately. If no human being came in their way, an animal was killed. This, I think, we may explain without difficulty, if we consider the terror which the supposed wrath of the dead man's spirit undoubtedly struck into the living. The Maoris, according to the Rev. R. Taylor, considered all spirits of the dead to be maliciously inclined towards them,[4] and the ghost of a person who had died a violent death was certainly looked upon as especially dangerous. The craving for instantaneous expiation is even more conspicuous in another case which may be appropriately mentioned in this connexion. The Aëtas of the Philippine Islands, we are told, "do not always wait for the death of the afflicted before they bury him. Immediately after the body has been deposited in the grave, it becomes necessary, according to their usages, that his death should be avenged. The hunters of the tribe go out with their lances and arrows to kill the first living creature they meet with, whether a man, a stag, a wild hog, or a buffalo."[5]

Dr. Steinmetz himself quotes, in support of his theory, some other instances from the same group of islands, in which, when a man dies, his nearest kinsmen go out to requite his death by the death of the first man who comes in

[1] Dieffenbach, *Travels in New Zealand*, vol. ii., p. 127.
[2] *Cf. ibid.*, vol. ii., p. 129.
[3] *Cf.* Steinmetz, *loc. cit.*, vol. i., p. 343.
[4] Taylor, *Te Ika a Maui* (1870), p. 221.
[5] Earl, *Papuans*, p. 132.

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their way. He also refers to some statements concerning various Australian tribes, according to which the relatives of a deceased person kill some innocent man, evidently in order to appease his spirit, and perhaps, also, to a certain extent, from a feeling of revenge on their own account.[1] But all these statements prove nothing of what they are intended to prove. In every case the avenged death is "natural" according to our terminology, and caused by sorcery in the belief of the savages. Moreover, the Philippine Islanders are known to have the very worst opinion of their ghosts, who are supposed to be particularly blood-thirsty soon after death;[2] and the Australian natives very commonly tie up the limbs of the dead bodies, in order to prevent the deceased from coming out of the tomb to injure the survivors.[3]

To sum up: all the facts Dr. Steinmetz has adduced as evidence for his hypothesis of an original stage of "undirected" revenge only show, that in certain circumstances, either in a fit of passion, or when the actual offender is unknown or out of reach, revenge may be taken on an innocent being, wholly unconnected with the inflicter of the injury it is sought to revenge. Now this, as everybody knows, may happen not only among savages, but in the midst of the highest civilisation. Among ourselves it is by no means unusual that an enraged person wreaks his wrath upon people who have done him no harm whatsoever, and that an official who has been humiliated by his superior retaliates on those under him. But this can hardly be called revenge in the true sense of the word; it is sudden anger, or it is the outburst of a wounded "self-feeling," which, when not directed against its proper object, can afford only an inadequate consolation to a revengeful man. Nevertheless, although Dr. Steinmetz's facts disclose no new point in the psychology of revenge, they give us an interesting lesson with reference to another feeling, *viz.*, sympathy. Several of Dr. Steinmetz's cases record not sporadic and occasional outbursts of revengeful feeling, but established and recognised customs, and show to what an extreme the sufferings of innocent people are disregarded among many savage races.

Not only has Dr. Steinmetz failed to prove his hypothesis,

[1] Steinmetz, *loc. cit.*, p. 335 *sqq.*

[2] Blumentritt, "Der Ahnencultus und die religiösen Anschauungen der Malaien des Philippinen-Archipels," in *Mittheil. der Geogr. Gesellsch. in Wien*, vol. xxv., p. 166 *sqq.* De Mas, *Informe sobre el estado de las Islas Filipinas en* 1842, *Orijen*, etc., p. 15.

[3] Curr, *The Australian Race*, vol. i., pp. 44, 87.

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but, as far as I can see, this hypothesis is quite opposed to all the most probable ideas we can form with regard to the revenge of early man. For my own part I am convinced that we may obtain a good deal of knowledge about the primitive condition of the human race, but certainly not by studying modern savages only. I have dealt with this question at some length in another place,[1] and wish now merely to point out that those general physical and psychical qualities which are not only common to all races of mankind, but which are shared by them with the animals most allied to man, may be assumed to have been present also in the earlier stages of human development. Now, concerning revenge among animals, more especially among monkeys, many anecdotes have been told by trustworthy authorities. On the authority of a zoologist "whose scrupulous accuracy was known to many persons," Mr. Darwin relates the following story: "At the Cape of Good Hope an officer had often plagued a certain baboon, and the animal, seeing him approaching one Sunday for parade, poured water into a hole and hastily made some thick mud, which he skilfully dashed over the officer as he passed by, to the amusement of many bystanders. For long afterwards the baboon rejoiced and triumphed whenever he saw his victim."[2] Prof. Romanes considers this to be a good instance of "what may be called brooding resentment deliberately preparing a satisfactory revenge".[3] This, I think, is to put into the statement somewhat more than it really contains; but at all events it records a case of revenge, in the sense in which Dr. Steinmetz uses the word. The same may be said of other instances mentioned by so accurate observers as Brehm and Rengger in their descriptions of African and American monkeys.[4] I find it inconceivable that anybody, in the face of such facts, could still believe that the revenge of early man was at first

[1] *The History of Human Marriage*, p. 3 *sqq.*

[2] Darwin, *The Descent of Man* (1890), p. 69.

[3] Romanes, *Animal Intelligence*, p. 478.

[4] Brehm, *Thierleben* (1880), vol. i., p. 156. Rengger (*Naturgeschichte der Säugethiere von Paraguay*, p. 52) gives the following information about the Cay: "Fürchet er . . . seinen Gegner, so nimmt er seine Zuflucht zur Verstellung, und sucht sich erst dann am ihm zu rächen, wenn er ihn unvermuthet überfallen kann. So hatte ich einen Cay, welcher mehrere Personen, die ihn oft auf eine grobe Art geneckt hatten, in einem Augenblicke biss, wo sie im besten Vernehmen mit ihm zu sein glaubten. Nach verübter That kletterte er schnell auf einen hohen Balken, wo man ihm nicht beikommen konnte, und grinste schadenfroh den Gegenstand seiner Rache an."

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essentially undiscriminating, and became gradually discriminating merely from considerations of social expediency.

As a matter of fact, revenge only forms one link in that chain of mental phenomena, for which resentment is, perhaps, the most appropriate general name.[1] The word revenge generally implies undue severity, but when we use it as a psychological term to denote a mental state, the moral character of which appears in a very different light to different peoples, it seems advisable to strip it of all ethical qualification and to make it synonymous with deliberate resentment. It would thus represent the more intellectual form of resentment, in which the connexion between the pain inflicted and the volitional reaction is interrupted by a consideration of attendant circumstances, whereas in sudden resentment or anger the reaction takes place almost instantaneously. But it is of course impossible to draw any distinct limit between these two types, and, though brooding revenge is probably restricted to man, the cases of resentment among monkeys, quoted above, certainly indicate a certain amount of deliberation. Nor is it possible exactly to discern where an actual intention to inflict pain comes in. In its primitive form anger contains a vehement volition to remove the cause of pain, but undoubtedly it contains no real desire to produce suffering.[2] Anger is strikingly shown by many fish, and notoriously by sticklebacks when their territory is invaded by other sticklebacks. In such circumstances of provocation the whole animal changes colour, and, darting at the trespasser, shows rage and fury in every movement,[3] but, of course, we cannot believe that any idea of inflicting pain is present to its mind. As we proceed still lower down the scale of animal life, we find the volitional element itself gradually dwindle away until nothing is left but mere reflex action.

In this long chain there is no missing link. Protective reflex action, anger without intention to cause suffering, anger with such an intention, more deliberate resentment or revenge—all these phenomena are so inseparably connected with each other that no one can say where one passes into another. The common characteristic of these phenomena is this, that they are means of protection for the animal, and, if the involuntary reflex action be excluded, we may add the

[1] *Cf.* Fowler, *The Principles of Morals* (1887), vol. ii., p. 105.

[2] There are some good remarks on this in Mr. Hiram Stanley's *Studies in the Evolutionary Psychology of Feeling*, p. 138 *sq.*

[3] Romanes, *loc. cit.*, p. 246 *sq.*

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further characteristic that they are mental states marked by a hostile attitude towards the cause of pain. They are useful instincts, which, like other useful instincts, have been acquired by means of natural selection in the struggle for existence.

Two different attitudes may be taken by an animal towards another which has made it feel pain: it may either shun or attack its enemy. In the former case its action is prompted by fear, in the latter by anger; and it depends on the circumstances which of these feelings is the actual determinant. Both of them are of supreme importance for the preservation of the species, and may consequently be regarded as elements in the animal's mental constitution which admit of no further explanation than that derived from their usefulness. We have already seen that the instinct of attacking the enemy could not originally have been guided by a representation of the enemy as suffering. As, however, a successful attack is necessarily accompanied by such suffering, the desire to produce it naturally, with the increase of intelligence, entered as an important element in resentment. The need for protection thus lies at the foundation of resentment in all its forms.

This view, as everybody knows, has by no means the attraction of being new. More than one hundred and fifty years before Darwin, Shaftesbury wrote of resentment in these words: "Notwithstanding its immediate aim be indeed the ill or punishment of another, yet it is plainly of the sort of those [passions] which tend to the advantage and interest of the self-system, the animal himself; and is withal in other respects contributing to the good and interest of the species".[1] A similar opinion is expressed by Butler, according to whom the reason and end for which man was made liable to anger is, that he might be better qualified to prevent and resist violence and opposition, while deliberate resentment "is to be considered as a weapon, put into our hands by nature, against injury, injustice, and cruelty".[2] Adam Smith, also, believes that resentment has "been given us by nature for defence, and for defence only," as being "the safeguard of justice and the security of innocence".[3] Exactly the same view is taken by several modern evolutionists as regards the "end" of resentment, though they, of course, do not rest contented with saying that this feeling has been given us by

[1] Shaftesbury, *An Inquiry Concerning Virtue or Merit* (1699), book ii., pt. ii., sect. ii.

[2] Butler, *Sermon VIII.—Upon Resentment.*

[3] Adam Smith, *The Theory of Moral Sentiments*, pt. ii., sect. ii., ch. i.

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nature, but try to explain in what way it has developed. "Among members of the same species," says Mr. Herbert Spencer, "those individuals which have not, in any considerable degree, resented aggressions, must have ever tended to disappear, and to have left behind those which have with some effect made counter-aggressions."[1] Mr. Hiram Stanley, too, quoting Junker's statement regarding the pigmies of Africa, that "they are much feared for their revengeful spirit," observes that "other things being equal, the most revengeful are the most successful in the struggle for self-conservation and self-furtherance".[2] This evolutionist theory of revenge has been criticised by Dr. Steinmetz, but in my opinion with no success. He remarks that the *feeling* of revenge could not have been of any use to the animal, even though the *act* of vengeance might have been useful.[3] But this way of reasoning, according to which the whole mental life would be excluded from the influence of natural selection, is based on a false conception of the relation between mind and body, and, ultimately, on a wrong idea of cause and effect.

While rejecting Dr. Steinmetz's hypothesis as regards the nature of revenge, I by no means deny that a violation of the "self-feeling" is an extremely common and powerful incentive to resentment. Nothing more easily rouses in us anger and a desire for retaliation, nothing is more difficult to forgive, than an act which indicates contempt, or disregard of our feelings. Long after the bodily pain of a blow has ceased, the mental suffering caused by the insult survives and calls for vengeance. I find, however, no need to resort to different principles in order to explain the resentment excited by these different kinds of pain. In all cases revenge implies, primordially and essentially, a desire to cause pain or destruction in return for hurt suffered, whether the hurt be bodily or mental; and if, as is often the case, to this desire is added the intention to enhance the wounded "self-feeling" this does not interfere with the true nature of the primary feeling of revenge. That Dr. Steinmetz's explanation cannot be correct seems to me evident from the following facts, among others. On the one hand, we have genuine specimens of resentment without the co-operation of self-regarding pride;[4] stupidity, for instance, has a decided tendency to provoke

[1] Spencer, *The Principles of Ethics*, vol. i., p. 361 *sq.*

[2] Hiram Stanley, *loc. cit.*, p. 180. *Cf.* also Guyau, *Esquisse d'une Morale sans obligation ni sanction*, p. 162 *sq.*

[3] Steinmetz, *loc. cit.*, vol. i., p. 135.

[4] *Cf.* Bain, *The Emotions and the Will* (1880), p. 177.

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anger. On the other hand, the action of self-regarding pride may be totally free from malice. If a man has written a bad book which is severely criticised, he may desire to repair his reputation by writing a better book, not by humiliating his critics; and if he attempts the latter rather than the former, he does so, not merely in order to enhance his "self-feeling," but because he is driven on by revenge.

In the feeling of gratification which results from successful resentment the pleasure of power also may form a very important element, but it is never the exclusive element. As the satisfaction of every desire is accompanied by pleasure, so the satisfaction of the desire involved in resentment gives a pleasure by itself. The angry or revengeful man who succeeds in what he aims at, delights in the pain he inflicts for the very reason that he desired to inflict it.

We have already noticed several facts which show that, in cases where the actual offender, at least for the moment, cannot be got at, or where some other feeling, especially fear, prohibits the sufferer from attacking him, resentment may be directed against some individual who is not even supposed to have inflicted the injury resented. These cases, however, which may be easily multiplied by every-day observation among ourselves, by no means vitiate the conclusion that resentment, as a means of defence or protection, is essentially directed against the being that caused the suffering which we resent. They only show the intimate connexion that exists between the experience of injury and the hostile reaction by which the injured individual gives vent to his passion, and which does not fail to appear even when it misses its aim.

That the fury of an injured animal turns against the real or assumed cause of its injury is a matter of notoriety, and everybody knows that the same is the case with the anger of a child. No doubt, as Prof. Sully observes, "hitting out right and left, throwing things down on the floor and breaking them, howling, wild agitated movements of the arms and whole body, these are the outward vents which the gust of childish fury is apt to take".[1] On the other hand, we know well enough that Mr. Darwin's little boy, who became a great adept at throwing books and sticks at any one who offended him,[2] was in this respect no exceptional child. That a similar discrimination characterises the resentment of a savage is a fact upon which it would be unnecessary to

[1] Sully, *Studies of Childhood*, p. 232 *sq.*

[2] Darwin, "A Biographical sketch of an Infant," in MIND, vol. ii., p. 288.

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dwell unless there were some seeming anomalies that require an explanation.

It has been sufficiently proved that the blood-feud is an extremely wide-spread institution among peoples living on a low stage of social development. In this institution some sort of collective responsibility is always involved. If the offender is of another family than his victim, but of the same clan or tribe, some of his relatives may have to expiate his deed. If he belongs to another clan, the whole clan may be held responsible for it;[1] and if he is of another tribe, the vengeance may be wreaked upon his fellow-tribesmen indiscriminately. There is no difficulty, however, in explaining these facts. The following statement made by Mr. Romilly with reference to the Solomon Islanders has, undoubtedly, a much wider application: "In the cases which call for punishment, the difficulties in the way of capturing the actual culprits are greater than any one, who has not been engaged in this disagreeable work, can imagine".[2] Though it may happen occasionally that a manslayer is abandoned by his own people,[3] the general rule is, not only that all the members of a group are engaged, more or less effectually, in the act of revenge, but that they mutually protect each other against the avengers. A murder very often provokes a war,[4] in which family stands against family, clan against clan, or tribe against tribe. In such cases the whole group take upon themselves the deed of the perpetrator, and any of his fellows, because standing up for him, becomes a proper object of revenge. The guilt extends itself, as it were, in the eyes of the offended party. Moreover, because of the close relationship which exists between the members of the same group, the actual culprit will be mortified by any successful attack that the avengers make on his people, and, if he be dead, its

[1] Dr. Steinmetz says (*loc. cit.*, vol. i., p. 381) that he has found no instance of a blood-feud taking place between clans. My statement in the text is based on Bridge's account of the Fuegians in *A Voice for South America*, vol. xiii., p. 207; on Ridley's account of the Australian Kamilaroi in *Jour. Anthr. Inst.*, vol. ii., p. 268, and Godwin Austen's account of the Gāro Hill tribes of India, *ibid.*, vol. ii., p. 394.

[2] Romilly, *The Western Pacific and New Guinea*, p. 81. *Cf.* Friedrichs, "Mensch und Person," in *Das Ausland*, 1891, p. 299.

[3] *Cf.* Crantz, *The History of Greenland*, vol. i., p. 178.

[4] Dr. Post's statement (*Die Geschlechtsgenossenschaft der Urzeit*, p. 156) that the blood-revenge "charakterisirt sich . . . ganz und gar als ein Privatkrieg zwischen zwei Geschlechtsgenossenschaften," is not quite correct in this unqualified form, as may be seen, *e.g.*, from v. Martius's description of the blood-revenge of the Brazilian Indians, in his *Beiträge zur Ethnographie Amerika's*, vol. i., pp. 127-129.

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painful and humiliating effects are still supposed to reach his spirit.

In spite of all this, however, the strong tendency to discrimination which characterises resentment, is not wholly lost even behind the veil of common responsibility. Thus Mr. Howitt has come to the conclusion that, among the Australian Kurnai, if homicide has been committed by an alien tribe, the feud "cannot be satisfied but by the death of the offender," although it is carried on, not against him alone, but against the whole group of which he is a member.[1] Concerning the West Australians, Sir George Grey observes: "The first great principle with regard to punishments is, that all the relations of a culprit, in the event of his not being found, are implicated in his guilt; if, therefore, the principal cannot be caught, his brother or father will answer nearly as well, and, failing these, any other male or female relative, who may fall into the hands of the avenging party".[2] In Wetter, according to Riedel, the malefactor is first sought after, and only if he cannot be found out is revenge taken on some other member of his *negari*.[3] Among the Fuegians, as we are told by M. Hyades, the most serious riots take place when a manslayer, whom one wishes to punish, takes refuge with his relations or friends.[4] Von Martius remarks of the Brazilian Indians in general, that, even when an intertribal war ensues from the committing of homicide, the nearest relations of the killed person endeavour, if possible, to destroy the culprit himself and his family.[5] Among the Guiana Indians, according to Mr. Brett, "if the supposed offender cannot be slain, some innocent member of his family—man, woman, or little child—must suffer instead".[6] With reference to the Creek Indians, Mr. Hawkins says that though, if a murderer flies and cannot be caught, they will take revenge upon some innocent individual belonging to the family of the murderer, they are, on the other hand, "generally earnest of themselves, in their endeavours to put the guilty to death".[7]

It is quite possible that much more to the same effect

[1] Fison and Howitt, *Kamilaroi and Kurnai*, p. 221.

[2] Grey, *Journals of Expeditions*, vol. ii., p. 239.

[3] Riedel, *De sluik en kroesharige rassen tusschen Selebes en Papua*, p. 434.

[4] Hyades and Deniker, *Mission scientifique du Cap Horn*, vol. vii., p. 375.

[5] Von Martius, *loc. cit.*, vol. i., p. 128.

[6] Brett, *The Indian Tribes of Guiana*, p. 357.

[7] Hawkins, in *Trans. American Ethn. Soc.*, vol. iii., p. 67. *Cf.* also Dall, *Alaska*, p. 416; Chalmers, *Pioneering in New Guinea*, p. 179.

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might have been discovered, had only the observers of savage life paid more attention to this particular aspect of the matter. At all events, the most interesting point connected with the blood-feud is, not that the culprit himself often escapes so easily, but that, here again, the sufferings of innocent individuals are so utterly disregarded. It is in this point that a change of the utmost importance has taken place during the course of evolution. Can anything be more revolting to our feelings of justice, than the vengeance of the Californian Nishinam, who "consider that the keenest and most bitter revenge which a man can take is, not to slay the murderer himself, but his dearest friend"?[1] How contradictory to all our moral ideas, too, are the following facts. If, among the Marea, a commoner is killed by a nobleman, his death is not avenged directly on the slayer, but on some commoner who is subservient to him.[2] If, again, among the Quianganes of Luzon, a noble is killed by a plebeian, another nobleman, of the kin of the murderer, must be slain, while the murderer himself is ignored.[3] If, among the Igorrotes, a man kills a woman of another house, her nearest kinsman endeavours to kill a woman belonging to the household of the homicide, but to the guilty man himself he does nothing.[4] In all these cases the culprit is not lost sight of; vengeance is invariably wreaked upon somebody connected with him. But any consideration of the innocence of the victim is overshadowed by the blind subordination to that powerful rule which requires strict equivalence between injury and punishment—an eye for an eye and a tooth for a tooth,—and which, when strained to the utmost, cannot allow the life of a man to be sacrificed for that of a woman, or the life of a nobleman to be sacrificed for that of a commoner, or the life of a commoner to expiate the death of a noble.

A similar rule of equivalence, more or less rigidly enforced, not unusually regulates the practice of retaliation. Now it demands that only one life should be taken for one; now that a death should be avenged on a person of the same rank, sex, or age, as the deceased; now that a murderer should die in the same manner as his victim; now that various kinds of injuries should be retaliated by the infliction

[1] Powers, *Tribes of California*, p. 320.

[2] Munzinger, *Ostafrikanische Studien*, p. 248.

[3] Blumentritt, quoted by Spencer, *The Principles of Ethics*, vol. i., p. 370 *sq.*

[4] Jagor, *Travels in the Philippines*, p. 218.

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of similar injuries on the offender. It may be well, for the right understanding of savage revenge, to give some further illustrations of this remarkable law. In Nukahiva, according to von Langsdorf, when a homicide has been committed, a family feud ensues, "but as soon as one is sacrificed, no matter whether man, woman, boy, or girl, the enmity ceases, and the most complete harmony is restored between the antagonists".[1] The Negrito and Igorrote tribes in the province of La Isabela, in the Philippine Islands, keep a regular *Dr.* and *Cr.* account of heads; and, strange to say, the same Igorrotes who requite the death of a kinsman by the death of some perfectly innocent individual, taken at random, are so very particular in this quasi-retaliation, that "for a dead man a man must be killed, for a woman a woman, for a child a child".[2] Again, in Abyssinia, if a man kill another, the murderer must be put to death by the nearest relatives of the deceased with precisely the same kind of weapon as that with which he killed his victim. Mr. Parkyns tells us to what a ridiculous extreme this principle is carried: A boy who had climbed a tree, happened to fall downright on the head of his little comrade standing below. The comrade died immediately, and the unlucky climber was in consequence sentenced to be killed in the same way as he had killed the other boy, that is, the dead boy's brother should climb the tree in his turn, and tumble down on the other's head till he killed him.[3] Other instances show that the law of equivalence does not refer merely to killing. Concerning the Indians of Guiana, Mr. Im Thurn states that, in theory, if not in practice, a complete system of tit-for-tat has saturated their minds, and that the smallest injury done by one Indian to another, even if unintentional, must be atoned by suffering a similar injury.[4]

We must not, however, believe that this strict equivalence is a characteristic of resentment as such;—in this point I agree with Dr. Steinmetz. There is undoubtedly a certain proportion between the pain-stimulus and the reaction; other things being equal, resentment increases in intensity along with the pain by which it is excited. The more a person feels offended the more intense (*ceteris paribus*) is his desire to retaliate the offence, and the more severe is the retaliation he seeks. Resentment, however, involves no accurate balanc-

[1] Von Langsdorf, *Voyages and Travels*, vol. i., p. 132.

[2] Foreman, *The Philippine Islands*, p. 213. Jagor, *loc. cit.*, p. 213.

[3] Parkyns, *Life in Abyssinia*, vol. ii., pp. 236-238.

[4] Im Thurn, *Among the Indians of Guiana*, p. 213 *sq.*

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ing of suffering against suffering. Hence there may be a gross disproportion between the pain suffered and the counter-pain inflicted. Especially variable is the relation between the external action and the reaction, the exterior cause of resentment and the effect in which it issues. The same thing may call forth very different degrees of pain and resentment in different persons. The extremity to which anger may be driven in the bosom of a savage by an accident which appears to us as a trifle, is well instanced by the Patagonian cacique who, in a moment of passion, dashed his little three-year-old son with the utmost violence against the rocks, because he let fall a basket of eggs which the father had handed to him.[1] If, again, deliberate resentment is usually less excessive than sudden anger, it is so because there is time left not only for better estimating the extent of the hurt suffered, but also for other impulses to make themselves felt. Neither revenge nor sudden anger, however, stands in any naturally fixed relation to its cause. It may be sufficient to remember Hannibal who destroyed Himera and put to death 3000 male captives in revenge for his slain grandfather. Thus, while the direction of resentment against its cause belongs to its very nature, the exact demand of eye for eye and tooth for tooth does not. While some peoples are in the habit of taking only one life for one, others endeavour to destroy the whole family of the culprit.[2] While some only demand that the murderer shall die in the same manner as his victim, others seek to carry their revenge beyond death by mutilating the corpse of their slain enemy.[3] While some retaliate the various kinds of injuries by the infliction of similar injuries on the offender, others do not object to avenging even small injuries by death.[4] How, then, shall we explain the rule of equivalence, which regulates the revenge of some peoples, but which is not followed by others?

If this rule is not suggested by revenge itself, then of course it must be due to the influence of other factors which intermingle with this feeling and help, with it, to determine the action. One of these factors, I think, is self-regarding pride, which plays such an important part in the vengeance both of savage and civilised men, that it has, although mistakenly, been supposed to form the very essence of revenge. The

[1] King and Fitzoy, *Voyages of the* Adventure *and* Beagle, vol. ii., p. 130 *sq.*

[2] *E.g.*, the Brazilian Indians (von Martius, *loc. cit.*, vol. i., p. 128).

[3] *E.g.*, the Tasmanians (Calder, in *Jour. Anthr. Inst.*, vol. iii., p. 21).

[4] *E.g.*, the Timorese (Forbes, *A Naturalist's Wanderings in the Eastern Archipelago*, p. 478).



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desire to pull down the humiliating arrogance of the aggressor naturally suggests the idea of paying him back in his own coin. Thus a kick is apt to call forth a counter-kick, a box on the ear a counter-box on the ear, a bad word another bad word in return, a destruction of property a counter-destruction of property. This similarity between action and reaction is undoubtedly due, at least to a great extent, to wounded pride, though it seems probable that the natural disposition to imitate, especially in cases of sudden anger, acts in the same direction. But besides this qualitative equivalence between injury and punishment, the *lex talionis* requires, in a rough way, quantitative equivalence. Now this demand cannot possibly have its origin in any of the factors just mentioned. The wounded "self-feeling" may easily claim that the punishment shall be at least equal in intensity to the insult, but at the same time it may lead to a retaliation far beyond that limit. Some other power, then, must have been at work when the law of like for like was established. Let us see what power it was.

It must be noticed that the strict rule of equivalence has the character of a custom, which, like all customs, is enforced by society. Revenge among savages is, indeed, not a matter of merely private concern; society is not a wholly indifferent bystander even when the offence committed is merely individual. Though the exaction of vengeance is generally described as a right belonging to the offended party or his group, there are facts, too numerous to quote, which show that, even among the lowest savages now existing, it is regarded as a social duty, and that an omission of it incurs general censure. Man is by nature both resentful and sympathetic. When he sees some of his comrades suffer injury or death at the hands of another individual, he feels pain and resentment himself, and, though not himself a direct object of the injury, he desires that the offender shall be punished. In this simple combination of resentment and sympathy we have a fact of extreme importance for the moulding of the moral consciousness,—infinitely more important than any calculation as regards social utility. If anybody makes the objection, that this explanation models the savage mind too much after our own, I may, choosing one out of innumerable similar instances, refer to Prof. Romanes's terrier which, "whenever or wherever he saw a man striking a dog, whether in the house or outside, near at hand or at a distance, . . . used to rush in to interfere, snarling and snapping in a most threatening way".[1]

[1] Romanes, *loc. cit.*, p. 440.

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While public opinion thus demands that vengeance shall be exacted for injuries, it is also operative in another way. Whilst the resentment of the offended party may seem to outsiders to be, in some cases, too weak or too much checked by other impulses, it may, in other cases, seem to be unduly great. If the offender is one with whose feelings men naturally sympathise, this sympathy will keep the desire to see him punished, within certain limits, and if they sympathise equally with the suffering of the offender and with that of his victim, they will demand a punishment only equal to the offence. This demand—in combination with the rough idea natural to an uncultured mind that offence and punishment are to be measured by their external aspects—lies at the foundation of the strict rule of equivalence, which is thus an expression, not of unrestrained barbarism, but of advancement in humanity and civilisation. If this explanation be the correct one, the rule in question must have been originally restricted to offences committed by fellow-tribesmen, as public opinion could not otherwise have been an impartial judge. In speaking of the system of tit-for-tat prevalent among the Guiana Indians, Mr. Im Thurn expressly says: "Of course all this refers chiefly to the mutual relations of members of the same tribe".[1] When, on the other hand, we find, as we do, savages acting according to the same principle in their relations to other tribes, the reason for this may be sought partly in the strong hold which this principle has taken of their minds, and greatly in the dangers accompanying intertribal revenge, which make it desirable to restrict it within reasonable limits.

No facts then remain, so far as I know, which would contradict the view, hitherto so generally accepted, that resentment is essentially directed against its real or presumed cause. While the seeming exceptions to this rule have been shown to be due to the influence of other considerations to which resentment has been obliged to yield, innumerable instances might be put forth to prove the rule. I might in this connexion, for instance, refer to the practice of punishing "the offending member," which occurs among various peoples and is not unknown even among savages, but I shall restrict myself to saying a few words about another subject, which is of vast importance in the psychology of resentment.

Everybody knows that, among ourselves, at least, resentment is much more easily excited by intentional injury and by injury arising from negligence than by unintentional

[1] Im Thurn, *loc. cit.*, p. 214.

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hurt. This is especially the case with deliberate resentment, which in fact seems impossible where no volitional cause of the hurt is assumed. Among savages again, as we find from trustworthy authorities, a distinction is often, but not always, and hardly ever with satisfactory preciseness, drawn between accident, *culpa* and *dolus;* and the history of penal law shows how slow and gradual the full recognition of this distinction has been among civilised peoples. All this may be easily explained from what has been said above about the natural direction of resentment, and the increasing regard paid to human suffering. The direction is against the presumed cause of pain, but for the discovery of the cause more intelligence may be requisite than is possessed by a savage. If my arm or my foot by mere accident gives a push to my neighbour, and he, after due deliberation, is perfectly convinced of my innocence, surely he cannot feel angry with me. Why not? Simply because he makes a distinction between a part of my body and myself as a volitional being, and finds that *I* am no proper object of resentment, as the cause of the hurt was merely my arm or my foot. Every man, however, is not able, or is not willing, to draw that distinction, and the result is what we call unjust resentment. This may be due either to low intelligence or to a craving, not sufficiently bridled by sympathy or moral considerations, for giving vent to the angry passion. Hence the difference between the resentment of an uncultured and that of a cultured mind, a difference which evidently does not touch the essence of that feeling itself.

Deliberation, however, may be carried still further. If a man has suffered wilful injury, he may come to think that it is unreasonable and cruel to desire to requite suffering by suffering, unless some good result—especially the removal of the bad will whence the original suffering sprang—seems likely to be thereby attained. He will probably find it difficult, perhaps impossible, altogether to submit to this voice of reason and sympathy, because, as we have already seen, there is a deep-rooted connexion between the desire to inflict counter-pain and the desire to remove the cause of the pain suffered. He will find it most difficult if he assumes the mischievous volition to be rooted in the man's whole character; he will find it easier if he can trace it back to some apparently accidental cause, such as insufficient knowledge or some physical disturbance. In fact, he has only to make a wider use of the lesson which his relation to the inanimate world has forced upon him. If he burns himself on a hot plate, he immediately tries to remove the cause of

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his suffering, but he cannot reasonably desire to inflict counter-pain on a thing which can feel no pain. Of course, for a moment one may feel like Dr. Nansen, to whom, when he was crossing Greenland, it would have caused "quite real satisfaction," as he says, to destroy a sledge which was heavy to draw.[1] Such a desire, however, cannot last. Even the dog which hurts itself while playing with another dog, by running into a tree, changes its angry attitude immediately as it notices the real nature of the pain-giver.[2] In order fully to understand the difference between injury resulting from an inanimate thing (with which, to the enlightened mind, all sorts of accidental injuries are on a par) and injury inflicted by a volitional being, we must, however, also bear in mind that, in the former case, there is no exulting adversary who irritates us by his humiliating success.

These last considerations have already brought us near the moral problem. It is in connexion with this that Dr. Steinmetz's theory seems to me perhaps most unsatisfactory. He himself finds it necessary to call in considerations of utility and social expediency in order to explain the direction of revenge and punishment, and from those considerations, I presume, we have then to explain the notions of moral guilt and responsibility. All this I consider to be fundamentally wrong. Responsibility, assuredly, has its root in a principle far deeper than the calm idea that a certain individual, *viz.*, the offender, should be sacrificed for the public weal; and the partition-wall which Dr. Rée and Dr. Steinmetz have erected between revenge and punishment is demolished by an overwhelming array of facts. Space does not permit me, however, to give reasons for my opinions on these important points, which, besides, do not fall within the scope of the present article.

In conclusion I wish to add a word about the method by the aid of which the conclusions here opposed have been arrived at. For my own part I consider it to be of vital importance for psychology to make much more use of the comparative method than it has hitherto done. At the same time it should use it with great care, and should especially try to avoid those mistakes in methodology which, in my opinion, encumber so many sociological works of recent date. Dr. Steinmetz has largely founded his psychological theory—which forms only a part of his, in many respects, important work—on cases of savage vengeance which he

[1] Nansen, *Eskimo Life*, p. 213 *sq.*

[2] Hiram Stanley, *loc. cit.*, p. 154 *sq.*

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quite arbitrarily and unmethodically, without ever consulting animal psychology, interprets as survivals from earlier stages through which the human race has passed. This, I maintain, is to introduce into psychology the most fatal error of modern sociology. The study of phenomena which may with any serious probability be regarded as survivals is indeed of extreme importance, and has already led to many brilliant discoveries; but, at the same time, I am of opinion that an uncritical survival-worship has given rise to a host of fantastic theories, which, in minds conversant with exact procedure, are unfortunately apt to weaken belief in the comparative method altogether. When I find among anthropologists that an ancient stage of universal polyandry is still affirmed with dogmatic certainty, on the ground that marriage with a deceased brother's widow is a custom of frequent occurrence; that *all* sacrifice is declared to have originated in a practice of eating with the god, preceded by a still earlier practice of eating the god himself; that universal totemism, with all sorts of presumed consequences, is becoming the religious dogma of a whole school, then I cannot wish comparative psychology to pass through a corresponding stage. Rather do I hope that the new science may be guided in its difficult course by the same judicious and truly scientific spirit that has made Prof. E. B. Tylor's great works the solid foundation-stones of historical anthropology.

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## II.—A PSYCHOLOGICAL LABORATORY.

By E. Bradford Titchener.

It is now twenty years since Prof. Wundt instituted the first psychological laboratory in the University of Leipsic. A revolution, radical and far-reaching, was thus quietly inaugurated; the range and character of the psychological work of the last two decades differ in essential respects from those of the work that preceded it. There is probably no psychologist of note at the present day who does not confess to the influence exerted on his systematic thinking by the results of the experimental method, while there are not a few biologists, moralists and metaphysicians who acknowledge a similar indebtedness to laboratory psychology. Laboratories have been established in most of the principal universities of Germany and in all the principal universities of the United States, while there is, I think, no country now contributing to the general stock of scientific knowledge that does not possess at least one such foundation. It follows from all this that to carry on the psychological work of a modern university the psychological professor must have acquired a body of what one may call 'technical' knowledge, knowledge of applied mechanics and applied electricity, which a generation ago would have been as unnecessary for him as it still is for the professor of philosophy. For all laboratories are alike in their main features: there must be a power supply, special kinds of furniture and fixtures, and a collection of special appliances; and if physics, the mother

Explanaton of Figure.

The letters A to H of the Figure stand for the following instruments, etc.:—

A. Hering indirect-vision colour mixer.
B. Fall phonometer.
C. Curtains for screening phonometer and subject, to avoid echo.
D. Ellis-Helmholtz harmonical.
E. Münsterberg arm-movement apparatus.
F. Photometry bar.
G. Zimmermann chronograph.
H. Nichols rheostat.

The arrangement of tables, apparatus, etc., is largely arbitrary.

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of the sciences, does not preside at the installation, the provision of an equipment, however elaborate, will be in vain.

But although psychologists require from one another, and although universities require from their professors of psychology, some measure of familiarity with the principles of physics, and therefore with mathematics and applied physics, the kind and amount of this familiarity have never, so far as I know, been illustrated in the concrete by a description of the actual working of a psychological laboratory. Accounts of certain American laboratories have been published, one at least with a diagram of ground-plan and a statement of the dimensions of its rooms; there are papers dealing statistically with endowment, equipment, student attendance, etc.;[1]

[1] The following are, I believe, the most important references:—

(1) J. M. Baldwin, "The Psychological Laboratory in the University of Toronto". *Science*, O.S., vol. xix., 1892, p. 143.

(2) M. Baudouin, "La psychologie expérimentale en Amérique. Le laboratoire et les cours de Clark University à Worcester." *Archives de neurologie*, vol. xxviii., no. 89. "Les laboratoires et les cours à Yale, Harvard, Cornell, Pennsylvania, . . . etc." *Ibid.*, vol. xxviii., no. 93.

(3) W. Bechterew, "Le laboratoire psychophysique de l'université impériale de Kazan". *Cong. de Zool. de 1892*, vol. iii.

(4) E. Bérillon, "Notice sur l'institut psychophysiologique de Paris". Paris, 1897.

(5) M. W. Calkins, "Experimental Psychology at Wellesley College". *Am. J. of Psych.*, vol. v., p. 260.

(6) E. Casslant, "Le laboratoire de physiologie des sensations de la Sorbonne". Paris, 1897.

(7) E. B. Delabarre, "Les laboratoires de psychologie en Amérique". *L'année psychologique*, vol. i., p. 209.

(8) T. Flournoy, "Notice sur le laboratoire de psychologie de l'université de Genève". Geneva, 1896.

(9) V. Henri, "Les laboratoires de la psychologie expérimentale en Allemagne". *Rev. phil.*, vol. xxxvi., Dec., 1893.

(10) J. Jastrow, "The Section of Psychology". *World's Columbian Exposition Official Catalogue*, pt. xii., p. 50.

(11) W. O. Krohn, "Facilities in Experimental Psychology in the Colleges of the U. S.". *Report of the Commissioner of Education for 1890-1*, vol. ii., p. 1139. "Experimental Psychology at the Various German Universities." *Am. J. of Psych.*, vol. iv., p. 585. "The Laboratory of the Psychological Institute at the University of Göttingen." *Ibid.*, vol. v., p. 282.

(12) "Psychological Laboratory of Harvard University." Cambridge, Mass., 1893.

(13) E. C. Sanford, "Some Practical Suggestions on the Equipment of a Psychological Laboratory". *Am. J. of Psych.*, vol. v., p. 429.

(14) G. M. Stratton, "The new Psychological Laboratory at Leipzig". *Science*, N.S., vol. iv., 1896, p. 867.

(15) H. de Varigny, "Le laboratoire de Madison, Wis." *Rev. scient.*, 1894, p. 624.

Of these papers (all of which, except nos. 3, 4 and 6, are known to me)

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and the output of the Leipsic laboratory has twice been summarised in the pages of MIND.[1] But I know of no article which describes the 'running,' the daily working, of a psychological laboratory. This is the topic with which I propose here to deal, making the arrangements of my own laboratory the peg upon which to hang my account. I hope that the results of my experience may be of some use to my colleagues, and especially to those whose laboratories are still in the planning; and I hope, further, that what I have to say may call out comment and criticism, and so lead to a general formulation of the necessities of an adequately equipped laboratory.

First of all, however, and by way of preface to the whole discussion, I would remind the reader of the dual character of the American psychological laboratory. The German laboratories are essentially research laboratories; drill-courses are practically unknown. 'Einführungscursus' are given at some universities; but the 'Einführungscursus' at Leipsic, *e.g.*, consists simply of a series of lectures upon the psychophysical measurement-methods, photometric methods, and reaction methods, with occasional exercises and demonstrations. The student gets his training by serving as 'Versuchsobject' for his seniors, and the training varies as the investigations in progress vary. If he desires to repeat the classical experiments in any particular field, he must do so on his own account. The American laboratory, on the other hand, has to serve the purpose of instruction as well as that of research. Any scheme of arrangement and equipment must, therefore, keep the drill-course steadily in view.

This difference in educational purpose and conditions can be brought out most clearly by a description of the psychological curriculum at a typical American university. At Cornell, *e.g.*,—I select the course with which I am most familiar,—the full curriculum extends over a period of six years. In his second undergraduate year the student can take a course in General Psychology (lectures and demonstrations); in the following year, a drill-course in Experi-

nos. 5 and 13 come nearest the intention of the present article. I omit a few papers of merely local interest or popular character. Information as to laboratory furnishings can be gleaned from many other sources; thus there are accounts of a 'silent room' and of a photographic room in the *Yale Studies*, of a dark room in the *Phil. Stud.*, the *Arch. f. Ophth.*, etc.; Prof. Sanford's *Course* has a chapter entitled "Suggestions on Apparatus"; the fourth ed. of Wundt's *Phys. Psych.* devotes much space to the description of instruments; and so on.

[1] By Prof. Cattell, in O.S., vol. xiii., p. 37; by myself, in N.S., vol. i., p. 206.

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mental Psychology (laboratory work and occasional lectures); in the fourth year, a course in Systematic Psychology (lectures, demonstrations, exercises). No lecture courses need be taken in the graduate years, though some special course or seminary is usually attended. The work done after the obtaining of the B.A. degree is, therefore, almost exclusively, research work. At the end of one year of graduate study, the M.A. degree may be taken; two years later, the degree of Ph. D. The gap between the undergraduate and graduate curricula is bridged by the requirement of a thesis for the first degree. Here, then, are three years of instruction and three years of investigation. And—what is the important point in the present connexion—all students, from those of the third undergraduate year inclusive, are handled not in a general lecture-room, but in the laboratory.

The consequences of this twofold demand upon the laboratory will appear in detail as we proceed; it is sufficient here to have called attention to the fact. I pass on, therefore, to a description of the Cornell laboratory itself.

1. *General Plan of the Laboratory.*—I do not know that any psychologist has hitherto succeeded in persuading his university to provide him with a special building, constructed after his own designs. The directors of the new laboratories at the University of Leipsic and at Columbia University were, I believe, allowed complete freedom as regards arrangement and equipment; but, none the less, these laboratories form parts of large buildings, so that their plan is necessarily determined, to some extent, by the plan of the whole. At Yale a private house has been converted to laboratory uses; at Toronto the laboratory occupies two widely separated sets of rooms in the main university building; everywhere, indeed, psychology has come late to the feast, and been obliged to content itself with what it can get.

The Cornell laboratory was opened in 1891. From that date until 1895 it consisted of a continuous suite of six not very large rooms. Extension then became urgently necessary, and it migrated to its present quarters,—the upper floor of one of the university lecture halls. It now consists, as the Figure shows, of ten rooms, to which, I hope, the two remaining rooms of the floor will soon be added. These two rooms are shown in the Figure, as the laboratory has been planned—partitions erected, doors cut, etc.—upon the twelve-room basis. It is accessible from three corridors; those to the north and south are used principally by graduate students, while the central stairway, opening upon the lecture-room, is the way of public entrance.

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Room 1, the 'optics room,' is a large room, lighted from three sides, with walls and ceiling painted a dull cream. Room 2, intended for the private room of the laboratory assistants, now serves the purposes to which room 12 will ultimately be put. Room 3 is the 'acoustics,' room 4 the 'haptics room'. Room 5 is a dark room employed for drill-work, demonstration and photography. Room 6 is the 'work,' and room 7 the 'lecture-room'. Room 8 is the director's private room; room 9 the 'reaction,' and room 10 the 'taste and smell room'. Room 11, which faces north, will be fitted up as a research dark room; room 12 will be furnished with the instruments used in the investigation of the physiological processes underlying affective consciousness, —pulse, respiration, volume and muscular tone. Between rooms 7 and 9 is a large store-closet, spacious enough to allow of the building up of apparatus previously to its actual use in the appropriate room. It will be noticed that the work-room is entirely cut off from the acoustics room, and opens only into rooms 5 and 7. The reaction room contains the time-measuring instruments and their controls; it is paired with the optics, acoustics, haptics or lecture-room for the performance of reaction-time experiments.

It may be said at once that the above arrangement has proved quite satisfactory; I do not know how the space could be more usefully apportioned. The haptics room is too small; but it could not have been made larger without very considerable outlay, and crowding is avoided by pairing it with the work-room, especially for temperature work. We are suffering just now for lack of a few more small rooms, but the pressure will be relieved when the full plan of the laboratory is realised.[1]

2. *Furniture.*—Rooms 1, 3, 4, 9 and 10 each contain one or more large wall-cases, for the storage of the optical, acoustical, haptical, reaction and taste-and-smell apparatus, respectively. It need hardly be said that the instruments thus grouped under various sense-names are by no means exclusively sensation instruments. The optical apparatus, *e.g.*, includes instruments for the investigation of visual sensation, visual space perception, visual memory, visual recognition, visual attention, imagination, etc., and for the giving of visual stimuli, simple and compound, in reaction work; the acoustical

[1] The 'when' here and elsewhere in the article should perhaps be written 'if'. M. Flournoy, whose original account of the Geneva laboratory proved to be too sanguine, remarks sorrowfully that "il ne faut jamais vendre la peau de l'ours avant de l'avoir tué". The fact that I annex rooms 11 and 12 solely for the reader's benefit may, I hope, suffice to propitiate the Fates.

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apparatus includes the instruments necessary for the investigation of tonal fusion, of clang analysis, of auditory rhythm, of auditory memory, attention and recognition, of the localisation of sounds, etc., and for the giving of auditory stimuli in reaction work. The distribution of the various appliances to their appropriate rooms has some convenience, as saving the labour of transportation from one part of the laboratory to another. But I am quite clear upon the point that the ideal laboratory must have a central 'museum room,' for the storage of all pieces not actually in use.

Small, solid, low tables are necessary for haptical work, and convenient for olfactometry. They are found in rooms 4 and 10. Where mercury is used (I shall return to this question presently) the tables must be edged with a raised bead, and a shallow well sunk in one or more corners, to prevent spilling. Tables of this sort have been placed in rooms 1, 3 and 9. It is advisable to have a lounge and a couple of swing-back, revolving chairs in the laboratory; very much depends in research work, and particularly in haptics, upon the bodily comfort of the subject.

The work-room has two wall-cases, the one for batteries, the other for general laboratory supplies, and a carpenter's bench with the usual appliances. The south end of the lecture-room is taken up with two cases for wall-diagrams and a long draughting table. The nine desks or benches shown in the Figure—each of which accommodates four students, separately seated—are low and extremely solid, so that class experiments can, if need arise, be performed upon them.

Besides tables and chairs and cases, which are 'furniture' in the strict sense of the word, the laboratory possesses certain pieces which lie upon the border-line between furniture and apparatus, and which may therefore be mentioned in this place. In the optics room, *e.g.*, we have a wall-campimeter, 4.25 x 1.80 m., made by slinging a wooden frame upon ordinary copper window-springs between uprights that reach from floor to ceiling. The frame is easily reversible, and is covered on the one side with black, on the other with white cloth, the meridians being marked out with grey and black threads respectively. This whole apparatus cost only £2, and has proved eminently serviceable.[1] In the acoustics room, again, we have the Appunn and Koenig

[1] Throughout this article I take £1 as the equivalent of $5.00.—It would, of course, be easy to replace the thread-meridians by a revolving arm of the same brightness as the background. But the apparatus would then be a good deal more expensive, and I do not think that any real advantage would be gained.

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bellows tables, a strong, portable foot-bellows, and an arrangement whereby a section of the room may be curtained off for phonometrical work. The fittings of the dark room are almost wholly of this mid-way character. Along the south wall runs a photometric bar, ending to the west in a dark box within the dark room, and to the east in a similar box opening into the work-room. Parallel with this bar extends the association apparatus, consisting of a long black table that carries the lantern and ground-glass screen (west), and a small, black, curtained chamber, within which the subject sits during experimentation (east). The centre of the room is free. To the north of the two doors we have the combined tilt-table and rotation-chair (west), and the photographic sink and ruby-window (east). The future research dark room, number 11, will have a Hering window, and heliostat arrangements for solar work.

3. *Gas, Water and Electric Service and Fixtures.*—Water is laid on in rooms 1, 5 and 6; gas in rooms 1, 3, 5, 6 and 7. Both services can easily be extended, if need arises. We have made no trial of water as a source of power.

The laboratory possesses three sets of electric fixtures. (*a*) It is furnished throughout with incandescent lamps for illuminating purposes. These lamps are, at present, run upon a night circuit only. Hence we have not employed the alternating current as a source of power. (*b*) Each of the rooms 1 to 9 is connected with every other room by a thirty-fold system of overhead wires. These are of varying sizes, the smallest capable of carrying a six-ampère current without undue heating, and mounted and insulated for a pressure of twenty-five volts. The wires come down to switch-boards at the places indicated in the Figure by a dotted line. The two half-systems—the groups of thirty wires running to the north and south ends of the laboratory—are brought together at a double (sixty-wire) switch-board in room 6. We are thus able to close twenty simple circuits at the same time.

There are three things for which a laboratory is disquieted: primary batteries, smoked paper and mercury.[1] The ideal

[1] At the Christmas, 1897, meeting of the American Psychological Association, Prof. Cattell remarked: "We have tried to banish mercury and smoked paper from our [the new Columbia] laboratory; and we think we have succeeded". I have not yet succeeded in finding the perfect substitute for smoked paper in chronographic work; but there are so many writing devices upon the market that a systematic search will probably reveal (or at least suggest) something that can advantageously replace it. Where a current can be passed through the writing point to some part of the writing surface, tinsel paper ('silver' paper) may be employed.

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laboratory will be able to dispense with them; I am sorry to say that we have still some need of all three. Primary batteries we employ only for the ringing of signal bells and for our telephone circuit; the Hipp chronoscope can be worked satisfactorily by a storage battery. Of course, a primary cell may be useful for some occasional purpose; but as a general rule it is more troublesome than serviceable. Mercury we employ on our small switch-boards. These are constructed after the Leipsic model. The wires descend to a wooden shelf in which is bored a series of wells. Over against these, in the length of the shelf, a counter-series is sunk, from which wires run to the apparatus. The wells are filled with mercury, and connected according to requirement by wire bridges. All shelves are edged with a raised bead, so that there is no lateral escape of mercury drops; and each is furnished with a close-fitting lid, which is kept always in place except for the brief intervals during which connexions are made or shifted. Our central switch-board has only dry contacts; and I should now prefer to have all wet contacts, whether on switch-boards, keys, or instruments, replaced by hard metal.

(*c*) The direct current supplied by the university power plant enters the laboratory at the haptics room, and is available for use at two points in the dark room and in the work-room (see **x** in the Figure). We draw upon it to charge storage batteries, to run the arc-light of our lantern, and in general to actuate instruments (colour wheels, pendulums, kymographs) throughout the laboratory. The necessary reduction of current and pressure can be effected either by the arrangement of lamp resistances to which Dr. Scripture has given the name of 'lamp batteries,' or by aid of a Nichols tinned iron rheostat.[1] I have no hesitation in recommending the latter in preference to the lamp batteries. The initial cost of the rheostat is very small; it is not liable to be broken, as lamps are; and the required amount of pressure and current can be obtained very easily and very accurately. As many pairs of wires as are needed can be taken from the rheostat to the central switch-board, and instruments supplied simultaneously in the different rooms of the laboratory. There is, naturally, some waste of power in the use of a heavy current for laboratory ends; but this is more than counterbalanced by the saving of time, trouble and expense that follows from the elimination of the primary battery.

[1] E. W. Scripture, *The New Psychology*, 1897, pp. 483, 484; E. L. Nichols, *The Outlines of Physics*, 1897, pp. 442, 443.

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So far, we have not found it necessary to have the current 'on tap' at more than the three places indicated. The main lead can be extended to other rooms at any time. Next year I intend to cut in the north wall of the dark room a square opening for the reception of a sheet of ground glass. Behind this a projection lantern will be placed. It will thus be possible, by arranging the audience with their faces to the south, to show slide diagrams in the lecture-room without darkening the room itself.

4. *Books.*—Books are necessary adjuncts to laboratory work; but it is difficult to give anything like a precise estimate of the library required. We are fortunate, at Cornell, in this regard: Morrill Hall, in which the laboratory is situated, lies within a stone's throw of the University Library. The psychological department has a yearly grant of £15 for the purchase of books for the library, and another of some £2 or £3 for the placing of books in the Philosophical Seminary Room. These grants are distinct from the library periodical fund. As for the laboratory: room 8 contains my private library, which has a fair working collection of psychological books and pamphlets, and files of the more important neurological and psychological periodicals. It is, of course, at the disposal of students who are working in the laboratory. I should say, giving a very rough estimate, that an initial sum of £20 and a yearly expenditure of £10 would provide a moderate technical library for laboratory purposes, inclusive of periodicals.

There is, however, one class of books which the head of the laboratory must collect for himself,—catalogues. Catalogues may usually be had for the asking; and all sorts and kinds, chemical, electrical, physiological, physical, bacteriological, photographic, zoological, are apt to 'come in useful' at one time or another. An apparatus should never be ordered after consultation of a single catalogue; it may quite well be that the tenth or eleventh that one consults will advertise a more serviceable form of the same device. And no apparatus that is at all costly should be ordered without previous consultation with the director of a large laboratory. Almost every firm has its weaknesses and its excellences, which can be discovered only by experience. The older laboratories have bought this experience, and it is needless for their successors to pay the same price. I may add a word of advice to inquirers: that they make their questions as *definite* as possible. Scientific men are, as a rule, only too glad to help one another; but to require your correspondent to formulate your problem,

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as well as appreciate your instrument, is to demand too much.[1]

5. *Instruments.*—It is not my intention here to give a catalogue of our own instruments. A year or two hence, when the laboratory is completed, I hope to publish a pamphlet containing a full list of the pieces that we possess, with makers and prices, and stating briefly the results of our experience with them. At present we are concerned, however, not with a particular laboratory, but with the working of the laboratory in general, and have to consider psychological appliances from a general standpoint.

Looked at in this way, the instruments fall into four, unequal but distinct, groups. We have (*a*) the apparatus needed for research in experimental psychology; (*b*) that required for drill-work in experimental psychology; (*c*) that required for class experiments in experimental psychology; and (*d*) that employed in the study of individual psychology.

(*a*) A large proportion of the pieces listed as serviceable for research in psychology and the physiology of the senses are pieces that have been employed in a special investigation for a special end. I suppose that all original work, in whatever science, is likely to require newly constructed apparatus. But the older sciences are at this advantage, that they have a large store of designs to draw upon; so that the new appliance may take shape, at least in large measure, from the recombination and readjustment of older devices. Experimental psychology is still so young that each new problem must be faced independently, and instruments contrived to meet its peculiar exigencies. The consequence is that a laboratory which is to keep abreast of scientific progress must have a skilled mechanic attached to it. It is of little use to have ideas, if you have no means of realising them in brass and steel. This is the weak point of the Cornell laboratory: we have no mechanic of our own, and no skilled workman to whom we can have recourse in the city. A laboratory so situated is very severely handicapped. For successful work we should have a workshop, fitted up at a cost of £150 or £200, and a mechanic working at least half-time for the laboratory.

But it is not only necessary to devise apparatus for the solving of new problems; even the standard pieces usually require a thorough overhauling on their arrival in the labora-

[1] A useful preliminary list of firms will be found in the pamphlet issued by the Harvard Psychological Laboratory, to which I have referred in a previous note.

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tory. Mr. J. D. Brown points out in his catalogue[1] that the old-established Hipp chronoscope generally demands a re-adjustment after it has left the factory. And if this is true of the dry tree, what may be expected of the green? A clever carpenter will go a long way in a laboratory, as I can gratefully affirm from personal experience; but what is needed is a skilled metal-worker who is something of an electrician and does not disdain to work in wood when wood-work is desirable.

(*b*) I mean by 'drill' instruments the appliances needed for such a course as is offered at Cornell in the third undergraduate year. The first term in this course is devoted to qualitative work, the repetition of classical experiments in optics, acoustics and haptics. The work of the second term is quantitative, work with the psychophysical measurement-methods. That of the third term is both qualitative and quantitative; it includes experiments upon action, attention and the affective processes.

The apparatus used in such a course is almost wholly American, just as the research apparatus is preponderantly German in origin. There are two or three American firms from which one can procure the instruments needed for Prof. Sanford's *Laboratory Course in Experimental Psychology*. Individual pieces are, however, by no means always satisfactory; and no firm, as far as I am aware, has received Prof. Sanford's authorisation. For optical work we have the very useful collection of material put together recently by Prof. Münsterberg.[2] For haptical, there are a number of pieces upon the market bearing Dr. Scripture's name.[3] Some of these are quite good; others (I speak from three years' experience) are practically valueless. I have no doubt that, with revision, this set could be made both more efficient and less expensive than it is. For acoustical work we have, as yet, hardly any drill material. I am now trying to make up a fairly cheap and reliable acoustical outfit for class purposes, though I shall be very glad if some other psychologist anticipates me.

The method work presents little difficulty. There are plenty of pieces lying on the border-line between this and the previous group that can be put into the hands of careful students and give good results. I need only mention colour wheels,

[1] "Catalogue of Phil. Instr. devised by J. McK. Cattell," Camden, N. J. *Cf.* Prof. Cattell, in *Mem. Nat. Acad. Sci.*, vol. vii., no. ii., 1896.

[2] "Pseudoptics," Milton Bradley Co., Springfield, Mass., £1.

[3] *Cf.* Catalogue of E. G. Willyoung & Co., Philadelphia, Pa.



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eye-measurement screens, weights, movement apparatus, forks and temperature tubes.

The reaction work has hitherto offered considerable difficulties. I believe (though this is not the place to enter into technical reasons) that the Hipp chronoscope arrangement is the most satisfactory of any yet proposed. And it has the advantage, for drill work, that the student need not know anything about the special mechanism of the clock; he may receive a useful training, both as subject and as experimenter, although he has but the vaguest knowledge of the technicalities of the apparatus. On the other hand, the chronoscope is expensive; I do not suppose that any laboratory possesses more than two clocks. Hence, while four students may be engaged at any one time upon reaction experiments, the rest of the class must occupy themselves with other matters until their turn comes round. The difficulties seem happily surmounted by the introduction of Prof. Sanford's vernier chronoscope. This instrument costs only £1, and is well adapted for drill work.[1]

(*c*) Class experiments are very different from the drill experiments just described. In drill work the students are paired off, two and two, precisely as they would be in research work; the only distinction is that the experiments are repetitions of experiments already performed, and that they are repeated with somewhat rough instruments,—instruments that are cheap enough to be bought by the half-dozen. The class experiment is an experiment in which ten or a dozen students take part at the same time. It is necessitated by an overcrowded laboratory and a small teaching staff.

We have succeeded in keeping the numbers of our third year's class down to twenty; the course is a hard one, not to be taken except by those seriously interested in psychology. The reason is—and this may be taken as an axiom of psychological pedagogy—that the instructor cannot handle more than ten, and cannot well handle more than eight students during a two-hour laboratory period. To let more into the laboratory without a corresponding increase of the teaching force would be unfair both to teacher and to learner. But there are many teachers who shrink from any system of rigorous exclusion. To them two alternatives are open. The one is to repeat their work, giving the course six days in the week instead of three; the other is to have recourse to class experiments. It seems to me that the first plan is

[1] *Am. Journ. of Psych.*, vol. ix., p. 191.

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objectionable from the point of view of the director of the laboratory: it curtails unduly the opportunities for research work, and brings teaching too much to the front; while the second is objectionable from the point of view of the student: he receives no individual instruction, and has to perform his experiments in a disturbing environment, and without any of that freedom of speech and movement which is one of the great charms of true laboratory work. Hence I can say nothing, from personal experience, of class experiments. One such arrangement would be a 'chain reaction' taken by the help of Wundt's demonstration chronoscope; another would be a test of the range of attention by means of the large fall chronometer. At the Christmas meeting of the American Psychological Association a paper on this subject, written by Dr. Kirschmann of the University of Toronto, was read by title. When it is published we shall know more about the possibilities of the class experiment and of the appliances that it requires. In the meantime there can be no doubt that many laboratories already possess appliances of the sort, and that they will play an increasing part in the work of those that are poorly endowed or much cramped for space.

(*d*) It is through individual psychology that experimental psychology joins hands with anthropometry. 'Mental tests' are beginning to loom large in psychological literature, and every test requires its own apparatus. The instruments must be strong, cheap, and of simple construction. A good many of those devised by Mr. Galton would answer the purposes of individual psychology were they less expensive. The best pieces to be had at present, so far as I am acquainted with them, are of Prof. Jastrow's contriving. A full set would include the ordinary sense tests (tests of keenness of vision and of audition, of colour blindness, of æsthesiometric discrimination, of power of smell, etc.), instruments for the taking of the simple and association reaction-times, tests of muscular strength, steadiness, fatigue, etc., as well as tests of the 'higher' mental processes: quickness of apprehension, ingenuity, accuracy, fidelity of memory, power of co-ordination, keenness of observation, type of memory and imagination, control of attention, temperament, mental disposition and furniture, etc. The materials for these last cover a wide range, extending from ink-blots upon paper squares to the crowning triumphs of 'parlour magic'. Whether mental tests, as at present performed, will yield a real insight into the tangle of the individual consciousness is a question that can hardly be answered for some time to

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come. The significant thing is that many psychologists are seriously interested in them, and that this interest has brought to birth a fourth category of psychological apparatus.

The ideal laboratory will possess, in its museum room, a collection of instruments of all these four classes. The working laboratory does not need to possess them all. As I have indicated, we have ourselves no pieces of class *c*, which is a substitute for class *b*. We are now getting together some amount of the material that comes under class *d*, but rather with a view to testing its general psychological value than of carrying out any investigation into individual psychology as such. Experimental psychology must legislate for individual psychology, but the aims of the two are different.

6. *Endowment.*—A laboratory can be equipped, one may say, at any cost, from a final £10 upwards. I have several times been called upon to lay out sums of £10, £20 or £30 for the less fortunate of my colleagues; and something of value can be obtained even for the smallest of these amounts. Hence my advice to the as yet unendowed would be that they take what they can get, but get all that they can. If I were compelled to name a definite limiting sum, I should, I think, make it £30. For £10 you can get one or two good pieces: the Ellis-Helmholtz harmonical, or the Marbe colour mixer, or a Zwaardemaker double olfactometer with solutions, or a triad of colour wheels and a reliable æsthesiometer, or a Stumpf interval apparatus, or a set of Appunn forks; and the remaining £20 will go some distance towards a series of instruments for drill work, more especially if you have a carpenter at hand and make your memory-drops and fall chronometers and so forth at home. Still, a psychologist thus endowed could scarcely be called happy during his lifetime.[1]

The Cornell figures may be used to give the reader an idea of endowment upon the university scale. In 1891 the Professor of Psychology was granted a sum of £400; this was spent upon standard pieces and sets, not upon furniture and

[1] Professor Sanford has made out a liminal list of apparatus—the amount that is just noticeably better than nothing—as follows: "Weights for pressure and lifting, including those of equal weight but unequal size; a sonometer; ten or a dozen ordinary tuning-forks of a′ and c″ pitches for special tuning; a resonance bottle; a pair of bottle whistles; a yard of small rubber tubing; Bradley's Pseudoptics; some small pieces of coloured gelatine; a 60° prism; a dark box; and a couple of yards of metric cross-section paper". *Course*, p. 419. The approximate cost of such a set would be £5.

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fixtures. The laboratory is permanently endowed with an income of £120, the annual payments of which began with the academic year 1891-2. This £120 is supposed to cover fixtures, running expenses, etc., as well as apparatus. Two grants have, however, been made in addition to it: one of £53 for installation of the equipment in Morrill Hall in 1895, and another of £21 for the taste and smell room in 1897. At the end of the present academic year, 1897-8, the expenditure upon the laboratory will therefore amount to £1194, irrespective of minor gifts of instruments from students and from the director.[1]

Arguing from our own experience, then, I offer the following sums as roughly representing the upper and lower limits of requirement for a university laboratory, on the assumption that rooms, light, heat and power are free:—

| | | |
|---|---|---|
| Initial expenditure; workshop | £175, | £100. |
| Initial expenditure; apparatus | £600, | £400. |
| Annual income; apparatus | £150, | £100. |
| Annual income; books | £20, | £10. |
| Annual income; mechanic's salary, | ? | |

The latter item will depend upon the facilities offered the mechanic for putting the pieces invented in the laboratory on the general psychological market, and the vogue that these pieces obtain, as well as upon the number of hours a day that he devotes to the laboratory.

Where does all this money go to? It goes, first of all, for research apparatus. Every autumn we purchase, at Cornell, some few good instruments, choosing them, so far as possible, with a view to our own future investigations, but attempting, at the same time, to give equal attention to all the different fields of work. This year, *e.g.*, we bought the Koenig bellows table and differential sonometer, the new Griesbach æsthesiometer, a Dove siren, and the Hering indirect-vision colour mixer and colour-blindness instrument. The total cost of these, delivered in the laboratory, was rather more than £50: no small slice from the year's income. Indeed, all research apparatus is costly. Our chronograph, with accessory instruments, cost us over £60, transportation not included. The acoustics room contains no less than eighty-three forks, of varying sizes, all of them used in the course of a year's work for one purpose or another; and forks are not cheap. The large Helmholtz colour-mixing apparatus, which, I believe,

[1] To the psychologist, £1000 seems a large sum. What would it seem to the physicist or the physiologist? The comparison shows very prettily the working of the law of the *fortune morale*.

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the Leipsic Institute alone of psychological laboratories possesses, is listed at Mk. 3000: and so on.

Secondly, the money is spent upon drill instruments. The expense here is not large, after the first initial outlay, although repairs amount to something every year. The only considerable items in our 1897-8 sheet are two, of £4 10s. for six Sanford chronoscopes, and of £3 for two Roux regulators (temperature work). I do not expect to spend upon drill appliances more than £10 a year at the outside, for some time to come.

There remains of our £120 a sum of, say, £60. This is accounted for under the very elastic heading of 'running expenses'. The items vary almost indefinitely from year to year. A laboratory is constantly needing glassware, photographic supplies, rubber tubing, the commoner carpenter's tools and materials, the minor electrical fittings (binding posts, switches, fuse plugs), drawing materials (pens, paper scales, drawing inks, crayons), black and white cardboard, clock oil and chamois leather, clamps and supports—a thousand and one things, from beeswax and burners and burettes to T-ways and thermometers and twine. These 'mount up' to a higher total than might be supposed. Next in importance, perhaps, stand the payments for carpenter's labour. There is hardly a week in the year that we have not something for the carpenter to do; he must alter fixtures, make frames and screens and shutters, overhaul the woodwork of foreign instruments (we find that all imported wood, however paraffin-soaked, warps and splits in time), cut windows in partitions, construct models and demonstration pieces to design,[1] stop leaks in the dark room, make up resistances, turn weight-holders, mend bellows, etc. I said above that a clever carpenter is capable of rendering essential aid in the laboratory. Besides the wall-campimeter, of which I have already spoken, we have a reading apparatus, an artificial waterfall, a Lambert colour mixer, a Listing's Law screen, a telestereoscope and several other useful pieces, all carpenter made. Thirdly, there are the expenses incident to investigation; the renewal of damaged parts, the supply of kymograph paper, of gelatine sheets, of taste and smell solutions, of the materials required for work in individual psychology,—alphabets and numerals, ruled cards and printed sheets,

[1] I made no fifth class of apparatus, for 'demonstration' instruments, because the pieces used for lecture demonstrations will always, I think, fall within some one of my four classes, or be simply models; models of brain or sense organs or sensori-motor connexions, or models illustrative of the course of association, of feeling, etc.

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photographs and plaster casts. And lastly come the purely sporadic expenditures, for occasional anatomical specimens or microscope slides, for preliminary models of instruments to be made in metal, for drawings of instruments or wall-charts, and so forth. Anything that remains at the end of the year goes towards the purchase of research instruments.

The reader must not imagine that the line between 'instruments' and 'running expenses' can be very sharply drawn; still less that a hard and fast division can be made between the various kinds of 'running expenses'. I have had recourse to a rough classification for purposes of survey, but that is all. In reality, a good part of our 'running expenditure' inures to the benefit of the laboratory; many of the items on the list are not perishable. The laboratory has just now to pay the penalty of its youth. Later on, when the sundries are no longer all to get, the running expenses will diminish, even if the general demands upon our resources should considerably increase. It is the first few years that cost.

7. *Conduct of the Laboratory.*—The laboratory is opened at 8 A.M. It usually closes at 6 P.M., although it may be kept open until 11 P.M., if necessary. All lectures, except those intermixed with the drill work of the third undergraduate year, are given in the forenoon. I have not found that particular hours are preferred for research work; though, indeed, the student's day is generally so full that hours are apt to be arranged rather by necessity than from convenience. Every student who works an hour as 'Versuchsobject' for his friend, takes it for granted that the friend will do him a like favour; and so the groups constitute themselves, very amicably. Every leader of a research group has a weekly meeting with the director, to report progress and discuss methods. The number and character of investigations differ considerably from year to year; at present three major and six minor studies are in course.

But the conduct of a laboratory is a personal matter. What I have written so far has, I hope, something of an objective ring about it. When a science is so young as experimental psychology still is, there must, of course, be differences of opinion as regards the indispensable parts of an equipment, the best method of reaching a proposed result, the proportioning of instruction and research. But these are all questions of degree. The question of the conduct of the laboratory at large, as envisaged by the one man responsible for it, is much more important; not only does much more hinge on it, but our answers to it may differ

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in kind. I offer my own personal view here with some diffidence, because the subject is not one that lends itself easily to any but conversational and quasi-confidential treatment. I believe, however, that if each of us will state his own conviction, and give reasons for it, we may attain to a far better co-ordination and correlation of our university and college laboratories than at present exists.

For my own part, then, I have always felt that it is very necessary to conduct a laboratory upon the lines of a determinate psychological system. This is one of the chief lessons that I learned, without realising at the time what I was learning, at the Leipsic Institute. In my German student days we all knew whereabouts in Wundt's system we were working, and that our results would reinforce or modify this or that statement of the *Physiologische Psychologie*. The consequence was that we all knew the system; we had a standard of reference for every new investigation. I believe that this is the way to make one's students psychologise, and I have followed it to the utmost of my power. Even in the drill-course, I do not allow the experiments to remain wholly detached and self-sufficient, as they are, *e.g.*, in Prof. Sanford's *Laboratory Course;* I try always to hang upon them some suggestion of further problems in a systematic psychology. Still more do the graduates, who have already taken my systematic course, approach their work with a keen eye for general relations. I can see objections to the plan: the laboratory tends to become the expression of a single man's ideas, and the demands upon the time of the director are such as almost entirely to preclude his own accomplishment of original work. But I see much more objection to the opposite plan, of complete freedom in choice of problem and of method; and compromise is difficult. I may add that, in my experience, the American student is on the average—there are many exceptions—quicker in generalisation and less patient of minute and laborious search for facts than are the English and the German; and that I have found my plan of work to produce good effects in the way of training and discipline, quite apart from its scientific results. The details of the 'system' may be right or wrong; that is really a minor matter, provided that the system itself be clear and self-consistent. It is of the nature of a system to be modified under stress of new facts. Advance in scientific thinking always implies an unlearning of old beliefs; and I do not see that it matters how many things we unlearn, if only we have never to unlearn our method.

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I know that these opinions are not generally held; and I should not have intruded them as a part of the *vie intime* of my laboratory did I not hope that their expression will evoke criticism, and so lead to results of practical value. Nothing need be said, in a psychological journal, as to the nature of psychological problems. Students of psychology who are unfamiliar with the laboratory may take it for granted that our problems are the same as theirs. The difficulties that they try to resolve by observant introspection, by the genetic method, by the collection of statistics, we are trying to resolve by an introspection held under experimental control,—to secure which we levy tax upon physics or physiology or chemistry or any other wealthy science that may come our way. That is the only difference.

8. *Student Attendance.*—The times are hardly ripe for a discussion of the function which a department of psychology discharges in the general economy of the university. Laboratory psychology has not yet grown to its full stature; and its youth has been vexed by the interference, friendly and hostile, of older disciplines. Nevertheless, it can do no harm to set down the facts that we have at our disposal, whether they are final or not.

As regards the place of psychology in the undergraduate curriculum, I think we can speak pretty positively. I see no reason at all why, under a system of free election, a course in psychology should not compete on even terms with courses in literature and history, and laboratory work in psychology with laboratory work in physiology or physics or zoology. There can be no doubt of the intrinsic interest of the topics with which psychology deals.

On the other hand, the question of the attractiveness of psychology to the graduate student is much more difficult of decision. It is probable that the graduate attendance at the American laboratories is now at its lowest ebb. A few years ago, when several important laboratories were in course of founding, and instructors were in great demand, the attraction of the new study was, naturally, very considerable. To-day, the places are filled; there is little likelihood of more establishments on a large scale; and the increased number of laboratories means an increased severity of competition. A man who has been fitted by undergraduate courses in history, languages, sociology and psychology to undertake (let us say) either literary work or the research work that shall prepare him for a psychological chair, may therefore very well prefer literature to psychology.

So much on the debit side. As a set-off, we may notice

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the following facts. First, the training that can now be obtained in the American laboratories is at least as good a fitting for work in an American university as can be gained in Germany. Hence, while a large percentage of students will doubtless continue to spend a year in Germany, for the sake of acquiring the language and seeing the German equipments, the number of Americans who take the German doctorate will probably decrease, and the number who take the American degree correspondingly increase. Secondly, the establishment of laboratories, while it increases competition, guarantees a psychological career, if only one is capable. Livelihood and reputation are there, to be grasped by the competent. Thirdly, I regard it as probable that the requirements laid upon teachers, in normal and high schools, will in the near future become heavier rather than lighter, and that a good proportion of those who intend to devote their lives to teaching will find it useful to have the psychological degree. Of course, the relation of the teacher to laboratory psychology is extremely complicated. It has been taken as an axiom that pedagogy must be based upon psychology, and teachers and psychologists alike have lost sight both of the difficulty of 'application,' of the translation of theory into practice, and of the immaturity of psychology itself. There has thus been, in the recent past, a provision of crude psychological literature, on the one hand, and on the other a rush for books and keen disappointment at their contents,—a swing of the educational pendulum towards psychology and a reactive swing away from it. But it is surely undeniable that, in the long run, the teacher will gain a great deal from the laboratory: what one may call the psychology of function,—the psychology of attention, of memory-type, of action, of invention,—all this does bear upon teaching. As child-study passes from the unschooled to the schooled, as the bridge is built from anthropometry across individual psychology to experimental psychology, as laboratory psychology ceases to be either an educational fashion or a scapegoat for the sins of past educators: in a word, as the public comes to see things psychological and educational in their right perspective, we may expect that the teachers' colleges and the pedagogical departments will keep a steady stream of students circulating through the psychological laboratory. On the whole, then, I look for a slow but constant increase in the number of our graduate students.

My sketch is now finished. Doubtless, there are many omissions; one is apt not to see the obvious. But the

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reader will be able, I hope, to form some notion of the activity of a psychological laboratory, of the nature of a psychological course that is surrounded from beginning to end by the laboratory atmosphere, of the duties that devolve upon the director,—in general, of the 'running' of the whole machine. And he will probably ask: What comes out of it all? It would be hardly fair to conclude my paper without returning some sort of answer to this question.

In the first place, then, training comes out of it. Education, discipline, method come out of it; and that they are of a kind worth paying for is attested by the bare fact that in America they are paid for, that a laboratory equipment is a thing of course at the universities, and is coming to be a thing of course in the colleges. In the second place, contributions to knowledge come out of it. During my six years at Cornell the department has published three major[1] and eighteen minor studies; it has three major[2] and three minor practically ready for publication; and six minor studies are in progress. There is nothing epoch-making about current laboratory work: psychologists have not yet discovered their argon or their Röntgen rays: but it is none the less work, work whose methods get discussed and assimilated, and whose results gradually alter the face of the science. In brief, the two things that come out of the physical or chemical laboratory, precisely those two things come out of the psychological,—trained workers and original work. And when one thinks how great a part of the world of knowledge rests upon psychological foundations, one sees how great is the import of these two things for knowledge, compare them with whatsoever else one will.

[1] M. F. Washburn, "Ueber den Einfluss von Gesichtsassociationen auf die Raumwahrnehmungen der Haut," *Phil. Stud.*, xi. A. J. Hamlin, "Attention and Distraction," *Amer. Journ. of Psych.*, vi. W. B. Pillsbury, "The Reading of Words: a Study in Apperception," *ibid.*, viii.

[2] E. A. Gamble, "The Validity of Weber's Law for Smell Intensities". S. E. Sharp, "The Relation of Individual to Experimental Psychology". I. M. Bentley, "The Qualitative Fidelity of the Memory Image".

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# III.—THE REGULAE OF DESCARTES. (II.)

(*Conclusion.*)

By Boyce Gibson.

CONTENTS—(*Concluded*).


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## IV.—*The Four Rules.*

*A: Order* (1, *Synthesis*).—Of the four rules given in the *Discours*, the third is undoubtedly the most essential; taken in conjunction with the first, which is more of the nature of a preface to the three others than an actual rule itself, it prescribes the order of research which must be observed in order to attain to a sure science of all things. Its leading note is the idea of order, a conception which lands us at once within the very heart of Descartes' method. It would be impossible to exaggerate the importance which Descartes attributed to this observance of order. In Reg. XIV. we read that the whole treatise is concerned with little else than the business of thinking out a subject in an orderly way, and this is borne out by the facts. For whilst Regulae V., VI. and VII., the only rules which the pure reason need observe in preparing a problem for its final solution,[1] are devoted to "stating and unfolding the precepts

[1] Reg. XIII., § 98.

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of methodical order";[1] the final solution of a problem itself depends, as we learn in Reg. XVII., on the adoption of a certain direct order of solution, the establishing and the universalising of which is the crowning triumph of the Regulae.

There seems, at first sight, to be a little confusion of thought in Descartes' commentaries on this third rule. He seems to have in mind, now the orderly march of inference in the development of a solution, and now the orderly sequence to be observed in the problems attacked and the studies successively undertaken. In Regulae V. and VI., we have the first of these aspects emphasised; in Reg. IV., § 22, it is the second that is insisted upon. "I have resolved," writes Descartes, "rigidly to observe such order in my search after knowledge as to start always with the easiest and simplest studies, and never to pass forward to others until there seems to be nothing left to be desired in those first undertaken; and it is for this reason that I have so far, to the best of my ability, made a study of this universal mathematic, so much so indeed that I fancy I shall soon be able to handle in their turn the loftier sciences without fear of being premature in my efforts."

It is probably this latter aspect which Descartes had immediately in view when he formulated his four rules in the *Discours*. For after stating in rule No. 3 that the first requisite of order was to start with such objects as were simplest and easiest to grasp, he proceeds a few lines farther down to point out that the demonstrations of the geometers satisfied best these requisites of simplicity and easy grasp, and that he had consequently started his search after truth by a fresh study of those very theorems which the Greeks and others had already proved.[2]

The barrier between these two points of view ceases, however, to exist so soon as we recall Descartes' conception of the unity of all science and the consequences which immediately flow from that conception. At the very threshold of the Regulae we have the great principle of the unity and universality of Science firmly laid down. 'The sciences taken all together are neither more nor less than the human intelligence itself, which is ever one and the same, however different its object-matter;' what have therefore been treated as single, separate sciences, are really 'all involved in each other and are mutually dependent' (§ 1); in fact, they implicate each other to such an extent that Descartes holds

[1] Reg. VIII., § 44. [2] *Cf.* Reg. X.

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it 'easier by far to study them all together than to take one in separation from the rest' (§ 1). The direct consequence of this view of the correlation of the sciences is to make the order of scientific inquiry quite independent of the subject-matter considered. This is explicitly brought forward by Descartes himself in one of his letters.[1] 'It should be observed,' he says, alluding to his *Méditations*, 'that in all that I write the order that I follow is dictated, not by the nature of the contents, but solely by the exigencies of the reasoning; in other words, I don't in the least undertake to state in one and the same context the whole of what pertains to the subject I am dealing with. . . . But when I pursue an orderly train of reasoning, *a facilioribus ad difficiliora*, I infer one truth from another, now by means of this subject-matter, now by means of that.' The true order is observed, then, not by saying at any point all that can be said about this or that matter, but by stating all that must be said to justify the inference from one truth to another.[2] The reasoning at each step must be sound and complete, but the vast subject-matter of science may be broken up at pleasure.

We see, then, that the synthetic movement of mind by which Descartes proposed to build up the entire structure of knowledge, presupposed the unity of all Science as synonymous with the unity of Reason itself, and that the order which it observed in its progressive march was in no way conditioned by the special matter with which Reason had to deal. The orderly march of inference in the development of a solution falls therefore into line with the order to be observed in the studies one successively undertakes. For these studies are not distinguished from each other by means of their subject-matter, but only by means of their relative complexity. The march of inference and the order of study are both advances from the simple to the more complex in a sense which is precisely the same in the second case as in the first. The complexity which Descartes invariably has in mind is in fact a complexity of a purely logical kind. The most complex phenomena of all are but complicated entanglements of a few ultimate and absolute truths. Truth is of one nature, and Knowledge of one structure through-

[1] V.C., viii., 481.

[2] Thus in the '*Abrégé*' which Descartes gives immediately after the Preface to his *Méditations*, he says: 'I have found myself obliged to follow an order similar to that adopted by geometers, which consists in first bringing forward all the premises necessary for the establishing of a proposition before drawing any conclusion from these same premises'.

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out, 'consisting solely in the combinations of irreducible elements'.[1] Thus it is, that whenever we deduce an unknown fact from facts previously known, we do not on that account light on some new species of being. All we do is so to extend our previous knowledge as to perceive that the thing we seek shares, in one way or another, the proportions of those objects which are given to us in the proposition itself.[2] Thus we need not imagine, in the case of the magnet, that its action can only be explained by bringing in some new order of being foreign to all our previous experience. 'He who reflects that there is nothing we can know in the magnet which is not made up of certain simple, obvious elements, will have no doubt as to how to proceed, but will first diligently collect all the well-attested facts he can muster concerning the nature of this stone, and will then endeavour to infer from these that commingling of simple elements required to produce all those effects which have been observed in the magnet.'[3]

This conviction that science can recognise no difference in nature between one truth and another, but only a difference of complexity, is fundamental with Descartes. There is identity of nature between the relative and the absolute, or at least the relative shares the nature of the absolute sufficiently to constitute a connexion by means of a chain of deductive inference. 'The entire difference,' in fine, 'between one truth and another, lies solely in the distance we must cover to reach them.'[4]

The order of inquiry, prescribed in the third of the four rules of the *Discours*, is, from either of the two points of the view we have been discussing, the order to be followed by such as are seeking to find out the truth of things, and should not be confused[5] with the order most suited to the exposition or explanation of what one has discovered. In this task of explaining to others what one already knows[6] Descartes allows that one can find a certain help in the rules of syllogism. But this is a mere concession. Descartes himself does not resort to syllogisms when in his *Essais* and *Principes* he endeavours to explain his Method and his System.[7] He simply allows himself a certain freedom in variously rearranging the order of discovery so as to adapt it the better to the purposes of exposition. Occasionally the

[1] Reg. XII., § 94. [2] *Cf.* Reg. XIV., § 110.
[3] Regulae, § 96. [4] *Ibid.*, § 57. [5] See V.C., vii., 377.
[6] *Cf. Discours*, part ii., § 6, and the closing words of Reg. X.
[7] *Cf.* V.C., viii., 488; ix., 24.

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two orders coincide. This is notably the case in Descartes' *Géométrie*,[1] and, as Descartes himself points out,[2] in his treatment of the rainbow in the *Meteors*. Finally, we should notice that in the concluding words of the third rule, a distinction is made between an order that is given in the very nature of the question to be examined and an order that must be introduced into the problem, as it were from the outside. Where there is a certain obvious order of treatment prescribed, that order must be emphatically followed. It is what Descartes terms the 'natural' order. 'I have now grown so bold,' he writes on one occasion,[3] 'that I am now venturing to find out why it is that such and such a star is in such and such a place: for though they appear to be scattered at random over the sky, still I have no doubt but that there is a natural order in their arrangement which is regular and determinate.' In another letter,[4] Descartes suggests that the key to a universal language might be found by introducing among all the ideas which the human mind is capable of conceiving an order similar to that which is found naturally to exist among numbers.

It may often happen however that this natural order is not inherent in the thing itself. In this case it must be cunningly ingrafted.[5] 'Thus,' says Descartes, 'if we wish to make out some hidden cipher, written in unfamiliar characters, there is indeed no obvious order in the thing itself, but we must assume a certain arrangement.'[6] This ingrafted order, as we subsequently learn, must in every case be methodically devised and so arranged as to obviate any risk of going twice over the same ground.[7]

The principle of Economy, emphasised in the words we have just quoted, is in Descartes' eyes essential to methodical order, and receives the fullest recognition in the Regulae. Again and again, especially in the latter half of this treatise, we are explicitly urged to respect the gift of reason by a rigid economy of its resources, scrupulously avoiding every superfluity. It is here that we find a distinct lacuna in the four rules of the *Discours*.[8] No allusion is made there to the need of mental economy or to the evil of wasting time on

[1] *Cf.* 'La *Géométrie* de Descartes au point de vue de sa méthode,' *Revue de Métaphysique et de Morale*, Juillet, 1896.

[2] *Cf.* V.C., vii., 377. [3] V.C., vi., 209. [4] *Ibid.*, vi., 66.

[5] *Cf.* Reg. X., § 63. [6] Regulae, § 63. [7] *Cf.* Regulae, § 42; also § 17.

[8] We shall have occasion to notice a second when we come to consider Descartes' conception of Analysis.

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the unessential; in the Regulae such allusions abound. Rules XIII., XIV., XVI., XVIII. and XX. breathe, one and all, this spirit of economy, and betray, in the very terms in which they are enunciated, a distaste of the superfluous.

Rule XIII. treats of the way in which we should handle the problems we desire to solve. We must take care, in the first place, not to assume more than our data give us, nor yet to interpret these data too restrictedly (§ 106); we must in fact 'see exactly wherein the difficulty consists, in order that, disembarrassed of all its accessories, it may be the more easily solved'. Thus in the case of the vase of Tantalus (§ 108), 'the difficulty stripped of its accessories is reduced to the inquiry as to why all the water previously in the vase flows bodily out as soon as a certain height is reached'.

In Rule XIV. this process of abstraction in the handling of problems is shown to culminate in their reduction to purely quantitative form; and we read farther on (§ 125) that 'it is no less necessary to abstract from a proposition those figures which geometers treat of, supposing the question to refer to these figures, than it is to abstract from it any other matter whatsoever'. 'The real extension of bodies must be consistently set before the imagination by means of the barest figures, for when so depicted, it is far more distinctly understood by the mind.'

Rule XVI., following up the directions of § 109, explains a device by means of which 'we not only economise our words, but, what is of special importance, present the difficulty in terms so transparent and abstract that, whilst we omit nothing that is useful, we yet leave nothing that is superfluous and which might fruitlessly take up the attention of our mind when it was requiring to grasp several things at once' (§ 128). This device is only an application of the principle of economy to the question of Mathematical Notation. Lastly, Rules XVIII. and XX. require that the same principle should be observed in all operations of a mathematical kind.

This principle of economy in method has its counterpart in the law of least action in Nature herself. To what extent Descartes realised this it would be difficult to say. But his great rival Fermat, writing two years after the death of Descartes to M. de la Chambre, concerning the problem of refraction, says: 'The proof I give is based on this one postulate — *Naturam per vias breviores operari—i.e.*, that Nature adopts the easiest and promptest means to reach her ends; for it is in this sense, and not, as many put it, that



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Nature always takes the line that is the shortest, that I consider that this axiom should be understood'.

*A : Order* (2, *Analysis*).—Having studied Descartes' conception of synthesis in connexion with the third rule of the *Discours*, it is natural that we should next turn our attention to his conception of Analysis.

The first definite statement as to what Descartes understood by Analysis is to be found in the enunciation of Reg. V. It is a gradual reference of propositions that are involved and obscure to simpler propositions. In the commentary that follows, Descartes makes it quite plain that his essential conception of scientific analysis is that of an investigation that proceeds step by step. Any such investigation which is not deliberately constructive, and therefore synthetic, constitutes an Analysis from Descartes' point of view. At the same time such analysis has a goal as well as a method. Its aim is to 'make diligent search for what is most absolute'.[1] This search may take the form either of a gradually receding reference from the more to the less relative—of which we shall speak later—or the form of a rigid deduction.

When considering analysis as a mere propædeutic, Descartes treats it as a form of pure deduction. Before one can be a master of analysis, in the sense of being able to refer the relative swiftly though gradually back to the absolute, one must have made oneself familiar with a number of main chains of logical dependence between the complex and the simple, so as to be able eventually to mould every question requiring solution into the form of one or other of these 'chains of inquiry'.[2] Descartes has accordingly the following advice to offer to the young student: 'Collect at haphazard the very first truths that present themselves and then see, one step at a time, whether others cannot be deduced from these, and others again from those just deduced, and so on in succession, the object of this study being to gradually establish in the mind such an organisation of relatives and absolutes, that, whenever we do attack some definite question, we shall be able to judge what previous discoveries will best repay a preliminary study'.[3]

Here analysis takes the form of deduction, but once we are concerned, not with the mere practice of method, but in the actual solution of problems, analysis ceases to be a deductive process: it becomes a process of regressive reference

[1] Regulae, § 29. [2] *Ibid.*, § 30. [3] *Ibid.*, § 31.

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in the direction of the absolute factors in the problem, the deductive work being now relegated wholly to the reconstructive work of synthesis as expressed in the third of the four rules of the *Discours*.

This aspect of analysis as mere regressive reference is the one in Descartes' mind when he is enunciating Reg. V., and is admirably illustrated in Descartes' own discussion of the anaclastic, as given in Regula VIII., § 47. The problem being to seek a line from which rays impinging in a parallel direction are so refracted as to meet at one and the same point after refraction, the investigator starts this process of regressive reference when he notices that the ratio between the angles of incidence and refraction is bound up with the changes it undergoes as the media vary; and is carried successively farther as he sees that the amount of this change depends in turn on the way in which the ray travels through the whole transparent medium, that his insight into the nature of this penetration presupposes a knowledge of the nature of light; and, finally, that to understand what light itself is, it is necessary to know what is meant in general by a power of nature, the last term and the most absolute in all this series. Here the regression ends, and the synthesis or reconstruction begins on the lines marked out in Regula V. The investigator starts afresh from the intuition of what is meant by a power of nature, and then works his way deductively forward to a knowledge of the anaclastic by means of the very steps that helped him down to his starting-point.

In the third of the four rules of the *Discours* where Descartes enunciates his rule of synthesis, he makes no allusion to the regressive analysis that, according to Reg. V., is its indispensable antecedent. This is no serious omission. Nor should we expect him to mention those deductive analyses which, as we have already seen, were simply of the nature of a propædeutic. There is, however, a definite and a final form which Descartes' conception of analysis took in the Regulae, the omission of which from the rules of the *Discours* makes a distinct gap there in Descartes' conception of Method.

In the advice which Descartes gives to the novice in Analysis, he recommends him to collect at haphazard certain truths, and deduce as many further truths from them as he can. He is to argue 'That is true, therefore this is true'. This is, however, only a training-ground for the far more general form of argument: 'If that is true, then this is also true'. Here analysis starts no longer from what is

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obviously true, or has been proved to be true, but only from what is assumed to be true. The method of analysis becomes thus in its most final and scientific form a method of proceeding step by step from the unknown to the known, on the assumption that the unknown is already known. This method, the exposition of which forms one of the main features of the Regulae, is fully explained in Reg. XVII.: 'The difficulty in question,' says Descartes, 'must be investigated in a straightforward manner. We must disregard the fact that, of its terms, some are known and others are unknown, and keep to a true chain of reasoning, our eyes fixed solely on the mutual dependence of the various terms.' Every solution of an equation is an illustration of this method, and the mere setting of it an embodiment of the principles on which this method relies. The equation is in fact the form to which Descartes himself is driven by the method he adopts. 'In accordance with this method of inquiry,' he says, 'we must find out as many magnitudes, as we have unknown quantities treated as known for the sake of adopting a direct method of solution, and express each of them in two different ways. This will give us as many equations as there are unknowns.'[1] By the adoption of this method, Descartes cancels the two indirect methods of analysis to which he refers in Reg. VI.[2] The direct method has been generalised so as to cover all possible cases,[3] developed, *i.e.*, into one uniform method of analysis.

*B: Distinctness.*—It has not unfrequently been considered that Descartes' reference to Analysis in the four rules of the *Discours* should be identified with the injunction of Rule No. 2. In a certain sense it is no doubt true that to split up a difficulty is to analyse it, but so understood, analysis ceases to possess that definite meaning which in Descartes' mind is quite essential to it. As we saw, an analysis is in every case a process of getting, step by step, into the heart of a subject: where there is no gradual progress of this kind, there is no analysis in the true sense of the word.

There is one point, indeed, at which the results of such analysis seem to coincide with the results of obeying the injunction given in Rule No. 2. Referring to the supreme usefulness of the precept embodied in Regula VI., Descartes says: 'It points out to us how all things can be split up into certain groups, not indeed on any ontological basis such as philosophers adopt in the use of their categories, but on one of logical dependence, such that whenever a fact

[1] Regula XIX. [2] Reg. VI., §§ 32, 33. [3] *Cf.* Reg., § 134.

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presents a difficulty, we can at once perceive whether a preliminary investigation of certain other facts will be likely to prove helpful, and if so, which, and in what order'. The analysis which proceeds link by link ends in riveting within the mind a number of different chains of inquiry, each of which has all its links logically subordinated to one another. Facts are thus split up into certain groups and, so far, analysis seems to be the method prescribed in Rule No. 2; but the likeness is quite superficial. Once we recollect that the groups referred to represent, in the one case, 'different chains of inquiry' into line with some one of which every question should at the outset be brought; and, in the other, definite divisions within the limits of the question itself, we see that this latter process of division is quite another thing from the gradual establishing, through a process of repeated analysis, of a number of logical chains between relatives and their respective absolutes. The analytic method of Reg. VI. teaches us how to assign a difficulty to its proper place in the hierarchy of relatives and absolutes; the precept of the second rule has quite another end in view. Its main object is to simplify a difficulty by studying it successively in its parts instead of simultaneously as one whole. In Reg. XIV., § 119, we have this clearly brought out. We shall suppose that a certain problem relative to a tetrahedron has been set for solution. Now in the case of a tetrahedron, the data must consist of at least six different elements, or the problem is insoluble. But it would be eminently unmethodical to attempt to deal with these six elements all at once. The art of the inquiry must rather consist 'in splitting up these data into as many groups as possible in such a way that though we include all these groups successively in our survey, we need never attend to more than a very few at a time'. A further illustration of the precept of Rule No. 2 may be found in Reg. VI., § 32,[1] where a complex process of inference is simplified at the outset by subdividing it into two simpler processes.

*C: Completeness.*—This subdivision of a difficulty into its component parts is obviously a very similar process to that inculcated in the fourth rule, where Descartes is talking of enumeration. The aim of the two rules is, however, quite different. In the second, the aim of subdivision is to facilitate the solution by securing *distinctness* of treatment, whilst the aim of enumeration in the fourth is to guard

[1] *Cf.* Reg. XI., § 70.

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against the possibility of omission by ensuring *completeness* at every step. The second and fourth rules represent the requirements of distinctness and completeness respectively, just as the first insists on certainty and the third on methodical order.

It is true that in his treatment of enumeration in Reg. VII. Descartes does refer to it as a principle of methodical arrangement, and in so far as he does so, it would be idle to attempt to draw a distinction between subdivision and enumeration. As we have seen,[1] Descartes' definition of enumeration in the Regulae is purposely of a very vague and general nature, and there is no evidence to show that, had he condensed his method into four short rules at the time he wrote the Regulae, he would have had a second rule at all: the second would probably have been included in the fourth. This confusion of the two aspects of distinctness and completeness constitutes another mark of difference between the Regulae and their counterpart in the *Discours*.

We may then take such sections as the forty-first and forty-second, in Reg. VII.,[2] as representing the nature of that common source from which the second and the fourth rules of the *Discours* took their rise. Here the main emphasis is laid on the necessity of arranging the elements of a problem in perfect methodical order. So arranged, they will be seen to distribute themselves under certain heads, as Rule No. 2 requires, and must be carefully reckoned up in accordance with No. 4.

As regards this fourth rule little need be said, as it deals solely with enumeration, and we have treated of enumeration elsewhere. There are, however, just one or two points in its enunciation to which it may be well to draw attention. In the first place, the 'complete enumerations' and 'general revisions' to which it separately refers should not be confused with each other or taken as synonymous. The enumeration which Descartes has especially in mind in enunciating this fourth rule is, as we see a couple of pages farther on, an exact summing up of all the conditions on which the solution of a problem depends, a process which should take place at the outset of an inquiry, whereas revision comes naturally at the end.

In the second place, it is interesting to notice that in a Latin translation of the *Discours*, published in 1644 and carefully revised by Descartes, Descartes has added the following

[1] *Cf.* Reg. VII., § 88.

[2] *Cf.* also the Enunciation of Reg. XIII.

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words to the enunciation of the fourth rule: 'tum in quærendis mediis, tum in difficultatum partibus percurrendis,' so that the revised rule would read as follows: 'I must make at every turn, whether I be seeking methods of solution or running over the various parts of a difficulty, enumerations so exhaustive and revisions so general in kind, that I may be sure of having omitted nothing'. The translation of the words 'in quærendis mediis' which I have ventured to give[1] is based on a certain use of the word 'medium'[2] adopted by Descartes in a letter to Mersenne.[3] He is indignant at Roberval's criticisms of his proofs of the roulette, and after protesting against the accusation of having shifted from one method of solution (medium) to another in the course of the demonstration, adds: 'He ought to be ashamed of boasting that he has a method (medium) for finding the tangents of the roulette which can be applied to all cases'.

*Distinctness as a Condition of Certainty.*—In commenting upon the second rule, we saw that it was quite misleading to connect the second and third rules together as representing the Cartesian methods of analysis and synthesis respectively. Far indeed from connecting itself naturally with the third rule, the second follows a great deal more logically from the first. The solution of any and every problem is possible only when each successive step in the solution is intuitively grasped. The best way, then, of ensuring an easy and speedy solution is to facilitate this work of intuition. It is Descartes' conviction that this end is best secured by splitting up the problem to be dealt with into as many parts or departments as possible. The first rule insists on the need of intuitively grasping each element in the solution of a problem, be it a datum or some step in the proof, and the second points out the one preliminary way by which this need can be satisfied. To grasp a point intuitively, that point must first be isolated, but to isolate the various points in a difficulty is to split it up into as many parts as its nature allows. That this is in all probability what Descartes has in mind when he places the second rule immediately after the first, follows from a number of passages in the Regulae, all of which emphasise the fact that intuition requires and involves separation of the elements to be intuited.

[1] I cannot agree with M. Aimé-Martin's translation (*Descartes*, second edition, Paris, 1844). 'Soit en cherchant le centre des choses.'

[2] Descartes' usual use of the term is of course quite orthodox. *Cf.* V.C., viii., 85, 364.

[3] *Ibid.*, vii., 455.

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The ninth Regula is solely occupied with showing that if we would accustom ourselves to see truth clearly and distinctly we must rivet our thought persistently on the very simplest elements we are able to discover. 'He who wishes,' says Descartes, 'to take in a large number of objects at one and the same glance sees none of these distinctly,' and similarly, 'he who is wont in one and the same act of thought to divide his attention among many objects, is left with a mind all in confusion';[1] 'we should therefore accustom ourselves,' he continues a little farther on[2]—and here the link connecting the first and second rules is plain to see—'to hold in our thought so few things at a time and things of so simple a kind, that we shall never imagine that we know anything which we do not grasp with a distinctness equal to that with which we apprehend the most distinct things of all'. The same warning applies to these distinctest of all things, the simple, ultimate elements: to grasp them intuitively 'we have only to separate them off from each other and consider each, in succession, with riveted attention'.[3] Finally, in solving any proposition, the art of the inquiry 'consists in splitting up the elements or dimensions of the problem into as many groups as possible, in such a way that though we include all these groups successively in our survey, we need never attend to more than a very few at a time'.[4]

*D: Certainty.*—Let us turn now to the first rule itself: 'Never to admit the truth of anything which we do not clearly recognise as true, *i.e.*, to studiously avoid any haste or prejudice, and to include in our judgments nothing which does not present itself so clearly and so distinctly to our minds, that we have no reason whatever for doubting it'; or, in the corresponding words of the Regulae: 'Never to busy ourselves with anything about which we are unable to reach a certainty on a par with that of arithmetical and geometrical conclusions (§ 7), to avoid presupposing data little understood or passing hasty and ungrounded judgments (§ 5), and to introduce no conjectures whatsoever into our judgments concerning the truth of things (§ 10)'.

The test of truth with Descartes is a certainty of the reason, springing, positively, from the very structure of reason itself, and negatively attested by the absence of any conceivable cause of uncertainty. In his enunciation of this rule concerning the test of truth, Descartes explains

[1] Reg., § 56. [2] *Ibid.*, § 58. [3] *Ibid.*, § 92.
[4] *Cf.* also Reg., § 127 and end of § 119.

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the positive aspect by means of the negative. It is by repressing every tendency to think impatiently or judge hastily, by putting gradually aside all one's preconceived ideas, and by confronting and overcoming every possible objection that could conceivably be raised, that the mind comes at length to see things clearly and distinctly. For, as we have already pointed out, the criterion with Descartes is essentially the natural light of the reason, a light which can only shine out truly when unobstructed by prejudices, and undisturbed by 'ill-regulated studies and confused reflexions'.[1] 'We can add nothing to the pure light of reason which does not more or less obscure it.'[2] This negative aspect, in the work of securing a trustworthy standard of truth, is clearly emphasised by Descartes in one of his letters.[3] Referring to the confessedly unsatisfactory nature of his proof of God's existence, as given in the *Discours*, he says: 'It is quite impossible to realise the certainty and the clearness of the reasons which go to prove the existence of God, unless one is able distinctly to recall those which point out the uncertainty of all that we presume to know about material things'.[4]

There are one or two further passages in Descartes' correspondence which emphasise the positive aspect of the test of truth. Once a methodical process of doubt has relieved the mind of its prejudices and obscurities, and left a way open for the natural light to pour through, and shine straight upon its object, there is no further need to ask, 'What is truth?' The question is quite irrelevant, 'for there would be no means available for learning what truth was, did we not know it by nature';[5] 'our soul,' he writes elsewhere, 'is by nature such that it must needs accept [as true] what it distinctly conceives [to be true]'.[6] Clearness of Insight or Truth depends thus in last resort on clearness of soul. If it is the clear soul that is speaking, it is truth that is being uttered. Truth is an instinct of this clear soul. 'As for me,' says Descartes, 'I distinguish between two kinds of instinct; one belongs to us in our capacity as men, and is of a purely intellectual nature: this is the natural light or "*intuitus mentis*" on which I hold that we should alone rely; the other we possess in our capacity as animals, and it consists in a certain natural impulsion. . . .'[7] This intellectual instinct or natural light Descartes explicitly accepts as his "*règle des vérités*" or criterion of truth.

[1] Reg., § 17. [2] *Ibid.*, § 18. [3] V.C., vii., 378.
[4] *Cf.* also V.C., viii., 57. [5] *Ibid.*, viii., 168.
[6] *Ibid.*, viii., 220. [7] *Ibid.*, viii., 168.

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In the same interesting and instructive letter,[1] Descartes has occasion to remark that all men have one and the same natural light. This is a central doctrine of Descartes. A thing is not to be accepted as true because a universal consensus of opinion declares it to be true; but, if a fact is true, and the intellectual instinct is allowed in every soul its unobstructed expression, there will be at once perfect agreement among all minds. The *intuitus mentis* is the universal soul of mankind.

The Regulae abound with passages that illustrate this democratic conception of the fundamental nature of Reason, and the very first words of the *Discours* repeat the same conviction that the power to pass valid judgments and to distinguish what is true from what is false . . . is by nature equal in all men. It is for this reason that 'deduction can never be wrongly made, even by the least rational of minds,'[2] for deduction is only this intellectual instinct in movement. It must not be supposed, however, that Descartes made no distinction in mental capacity between one man and another. He admitted that some minds work far more rapidly than others,[3] that Nature had not endowed all men with an equal degree of originality,[4] and that in a certain sense one man might be said to be less defective in natural capacity than another.[5] But only in a subordinate sense. Differences in originality, promptitude and acuteness, are only accidental, and mark no essential or natural difference between man and man.[6] Even allowing that these accidental differences are more or less ineradicable, they do not affect the essential quality of the mind, but only the ease and success of its application. Descartes' aim throughout the Regulae is consequently to expound a method which, if scrupulously followed by any person, however devoid he might be of accidental advantages, must needs bring him eventually to the same high level of Knowledge as is open to the acutest and most original of thinkers. 'We shall endeavour throughout this entire treatise,' says Descartes,[7] 'to treat so accurately of all the ways which are available to men in their search after truth, and to make these ways so simple, that however ordinary a man's natural capacity may be, provided only that he be thoroughly imbued with this whole method, he shall come to see that there is no truth

[1] V.C., viii., 168. [2] Reg. II., 5. *Cf.* also Reg., §§ 5, 12
[3] *Discours de la Méthode*, 1ière partie, § 2.
[4] Reg. X., § 62. [5] *Ibid.*, § 79. *Cf.* also Reg., § 58.
[6] See *Discours*, 1ière partie, § 2. [7] Reg., § 54.

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hid from him from which everybody else is not also precluded.' He will come fully to perceive 'That any ignorance he may have is due neither to want of natural capacity nor to lack of skill, and that there is positively nothing which another can know and yet he himself be incapable of grasping, provided only that he gives it suitable attention'.[1] Method and the will to follow it in every particular is thus all that is needed to render the completed science accessible to the least endowed of intellects, for the method provides 'that in no instance does the tax on one's natural ability exceed that which is imposed by the drawing of the simplest inferences,' and these simple deductions can never be wrongly made by any one.

*Liberty and Leisure.*—The first of the four rules of the *Discours* has, as we have seen, a general and prefatory character. It states the criterion of the method, the standard by which false is distinguished from true. In the manner in which this statement is made, there is enjoined a certain attitude of mind in the practice of the method which it may be of interest to notice. There must be no hurry, we are told, and no prejudice. The true philosopher's motto, in other words, should be 'Liberty and Leisure'. It may well be said to have been the motto of Descartes himself. In a letter to one of his friends,[2] he writes: 'I fear fame more than I desire it, as, in my opinion, it invariably interferes with the liberty and the leisure of such as acquire it. I enjoy these two advantages so fully and value them so highly that there is no monarch rich enough to purchase them from me;' and he adds 'Bene vixit bene qui latuit'. We are reminded of 'the freeman, who has been trained in liberty and leisure and who is called the philosopher';[3] and of Edgar's advice to Gloster in "King Lear": 'Bear free and patient thoughts'. This then is the spirit of the first of Descartes' rules: our thinking, to be true thinking, must be both free and patient. The standard of truth is in thought itself, but thought is only itself when it has liberty and leisure.

*The Subjective Character of Certainty.*—The purely subjective character of Descartes' criterion of truth has not recommended it to modern ideas. It has been asserted, and with justice, that no intuition *per se* has, theoretically, a right to be convincing; that the criterion of truth is conformity with the whole system of organised science, and that the part is

[1] Reg., § 48. [2] V.C., vi., 100.

[3] Plato, *Theaetetus* (Jowett's Translation, vol. iv., p. 284).

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true only when it is an expression of the truth of the whole to which it belongs. To discuss the general question of the criterion of truth would, however, lead us too far. We will, therefore, content ourselves with giving one example of Descartes' use of his own criterion which may serve to suggest the limits beyond which it is hardly to be trusted. Descartes had been considering the question as to whether light was instantaneous or not, and had come to the conclusion that it was absolutely instantaneous. He based this conclusion on the certainty of his own mind, a certainty such that he declared himself ready to confess, in case any one should prove him to be wrong, that he knew nothing in Philosophy whatsoever.[1]

Descartes' conviction in this case rested in last resort on the fact that astronomical observation had proved the passage of light from the moon to the earth to be instantaneous. The faulty inference makes it only too plain that a purely subjective standard of truth, even when wielded by the most cautious and enlightened of minds, is not sufficiently delicate to gauge the measureless possibilities of Nature.

## V.—*The Unity of the Natural Method: Its Mathematical Character.*

In discussing as we have done the nature and meaning of the four famous rules of the *Discours*, we have tried to see into the detail of Descartes' method and to appreciate it from Descartes' own peculiar point of view. Our next duty will be to try and grasp as a whole what we have so far been treating of in parts, and so restore to our conception of Descartes' method that sense of unity which is so eminently characteristic of it.

The unity of Descartes' method is peculiarly easy to grasp on account of its simplicity. With Descartes there is no question of a method that shall adapt itself to the material it is destined to organise; his method is consequently both uniform and universal. Method is one, to Descartes, in the same sense that Science is one: in each case, the unity depends solely on the fact that there is only one way in which the mind can work so as to secure the maximum certainty at each step of its progress. As Science must above all things be certain, this one way—the way, that is, of the geometer and arithmetician—must therefore be universally adopted. Descartes secures the unity of his method by

[1] V.C., vi., 264.

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universalising the uniform process of mathematical reasoning so that it may be 'sufficiently comprehensive to draw out the truth from any subject whatsoever'.[1] Referring to his method, as explained in Reg. XIII., he writes:[2] 'I do not hesitate to say that this portion of our method was not devised for the sake of solving mathematical problems, but rather that Mathematics must be learnt almost solely as a training towards the practice of this method'. His method is therefore one, in the sense that it is one and the same in all departments of scientific thinking: it is the method of a universal Mathematic.

Science with Descartes is, in fact, synonymous with a mathematical explanation of the universe. 'Apud me,' he writes in one of his letters, 'omnia sunt mathematice in Natura;'[3] and again: 'Mathematics is the principal basis on which all my reasonings rest'.[4] In another letter,[5] he asserts that the main reason why he holds his own views to be superior to any other lies in his having adopted a kind of philosophising which cancels as invalid any reason which is not mathematical and clear.[6] 'I am of opinion,' he writes, 'that nothing further can be desired in the case of philosophical theorems than the power to prove them mathematically.'[7] We have then in Descartes one who by temperament and conviction is *par excellence* a mathematician, whose whole philosophy is indeed but an expansion of the mathematics by which his method is inspired.

## VI.—*The Natural Method: Its Forms of Proof:* A priori *and* A posteriori.

The mathematical attitude which Descartes assumes towards the problems of experience determined the direction in which his method moved. This direction he describes as '*a priori*,' proceeding, *i.e.*, from causes to effect, proving the latter by means of the former.[8] It involves the passage from the absolute to the relative, from the simple to the complex, from the axioms and definitions of Philosophy to the theorems which are founded upon them. A theorem is proved *a priori* when it has been deduced from self-evident principles. Thus from these fundamental truths, that man's composite nature is essentially corruptible, and that his mind is, on the other hand, incorruptible and immortal,

[1] Reg. IV., § 19. [2] *Ibid.*, § 114. [3] V.C., viii., 205. [4] *Ibid.*, ix., 15.
[5] *Ibid.*, vi., 348. [6] *Cf.* also V.C., vii. 121, 434; viii., 123.
[7] *Ibid.*, viii., 336. [8] *Ibid.*, viii., 267, 599.

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Descartes proves *a priori* that it is hopeless to expect the same certainty in dealing with what concerns the conduct of life as must be looked for in the treatment of scientific questions.[1]

This *a priori* method is the ideal after which Descartes consistently strives. He calls it 'the noblest possible form of proof,'[2] and would like to see it exclusively adopted. Speaking of a certain natural order which he believes to hold among the relative positions of the scattered stars in space, he curiously adds: 'The knowledge of this order is the key and foundation of the highest and most perfect science that men can possess concerning material things, since by its means we could learn to know *a priori* all the various forms and essences of terrestrial bodies, whilst without it we must be content to guess at these *a posteriori* through their effects'.

The *a posteriori* form of proof which Descartes here contrasts so unfavourably with the *a priori* form is that which attempts to prove an assumed fact by means of the consequences which would necessarily follow, were the fact really true.[3] It would seem to follow from this that an *a posteriori* proof was of that kind which justifies a hypothesis, *quâ* hypothesis, on the ground that Nature herself justifies all the consequences which flow from it, but that, *quâ* hypothesis, it could never rank in validity with the final certainty of an *a priori* proof.

Much that Descartes says supports this natural view of the difference in validity between the two forms of proof. He is usually apologetic when referring to his *a posteriori* proofs,[4] admits that there is some reason for treating them as merely hypothetical,[5] and is inclined to insist simply on the moral certainty of assumptions eminently fruitful in consequences,[6] and on the cumulative force of this fruitfulness. 'All these things are indeed only probable when taken separately, and cannot wholly convince us, but when taken all together they acquire the force of a genuine demonstration.'[7]

But this apologetic tone is not consistently maintained. We have only to look more closely to see that Descartes claims more for an *a posteriori* conclusion than

[1] V.C., viii., 267.

[2] *Ibid.*, vii., 10, where he opposes it to the *reductio ad absurdum*, the least worthy of all.

[3] *Ibid.*, viii., 267.

[4] *Cf.* V.C., vi., 363; vii., 380; ix., 351.

[5] *Ibid.*, ix., 193.

[6] *Ibid.*, ix., 351.

[7] *Ibid.*, vi., 352.

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the term 'hypothesis' could possibly supply. In one sense, Descartes does look upon a result reached *a posteriori* as provisional, and in so far as it is provisional it might be looked upon as hypothetical in character. The epithet 'provisional' attaches to it, however, not *quâ* result, but *quâ* result reached *a posteriori*. There is, therefore, nothing hypothetical about the conclusion itself; what is provisional is merely the form of the reasoning that supports it. *A posteriori* reasoning is a mere scaffolding doomed eventually to give place to the more solid substructure of an *a priori* proof. Thus there is a marked contrast between Descartes' *a posteriori* conclusion and the working hypothesis of modern science. The former is permanent *quâ* result, provisional *quâ* method; the latter is permanent *quâ* method, provisional *quâ* result. But, in the second place, not only does Descartes look upon his *a posteriori* conclusions as established certainties of science, but the provisional *a posteriori* method itself is defended as a perfectly rigorous method of deduction, so much so, indeed, that one is inclined to wonder why Descartes should think it necessary to subordinate its validity to that secured by the noble *a priori* method. There is perhaps the same distinction in Descartes' mind between the validity of *a posteriori* and *a priori* proofs as subsisted in Kant's between the value of the '*summum bonum*' and the '*bonum consummatum*'. In both cases the distinction is between superlatives rather than comparatives, between two varieties of 'most' rather than between the more and the less.

An *a posteriori* proof is, therefore, in Descartes' opinion, as truely deductive in essence as an *a priori* demonstration. This we proceed to explain. Descartes was well aware of the impossibility of reasoning backwards from consequence to ground in the same way as one reasons forward from ground to consequence. In the Regulae,[1] we read: 'The converses of many necessary inferences are contingent: thus, from the fact that I exist, I can conclude with certainty that God exists, but I cannot affirm that because God exists, therefore I must also exist'. In the *Discours*,[2] Descartes expresses himself still more clearly and pointedly. 'I must needs confess,' he writes, 'that the potency of nature is so vast and so extensive, its principles so simple and so general, that I can scarce find a single individual effect which I do not see to be deducible from these principles in many different ways; my greatest difficulty, indeed, consists as a rule in

[1] Reg. XII., § 86. [2] 6ième partie, § 8.

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finding out along which of these ways the dependence really lies.' It is clear then that the *a posteriori* method presents a difficulty which is absent from the *a priori* form. In so far as this difficulty is unsurmounted or insurmountable, the latter method excels the former in rigour and certainty. But with Descartes the difficulty is far from insurmountable. A few experiments are all that he requires in order to attach a certain effect to its natural cause, experiments 'such that their results differ with the explanatory cause which is assumed'.[1] Descartes seems to argue as follows: The effect E must proceed from one or other of the causes $C_1\ C_2 \ldots C_n$, where $n$ is a definite number, say 3. The results of certain experiments show that it cannot be from $C_1$ or $C_2$ that the effect proceeds. It must therefore proceed from $C_3$. Assuming the experiments to be available, the validity of the reasoning depends wholly on our being able to fix a limit to the number of possible causes whence the effect E could proceed. Descartes seems, as a rule, to have been able to do so. Referring to a certain assumption at the opening of his *Meteors*, he says: 'I could not prove it *a priori* without revealing my whole theory of physics, but the results which I have logically deduced from them, and which cannot be similarly deduced from any other principles, seem to prove it sufficiently *a posteriori*'.[2] So again he asserts that he has given more than 500 reasons in his *Dioptrics* and *Meteors* which prove a certain assumption *a posteriori*; '*i.e.*,' he goes on, '500 things I explain by means of the assumption, nor could these be explained without it'.[3] In all these cases the effect is represented as having been traced *a posteriori* to the one cause whence it actually emanates.

To be strictly deductive however, deductive, *i.e.*, in the Cartesian sense of the word, a proof must not only proceed rigorously from one fact to another which is necessarily connected with it, but the starting-point of the inference must be a fact that the pure reason grasps as certain and indisputable. As a rule this starting-point in an *a posteriori* demonstration, is some well-sifted fact of sense-perception, a fact which reason, working through the senses, is able to apprehend intuitively as something which is rationally certain and unmistakable, a fact which, in virtue of its absoluteness and simplicity, is entitled to serve as basis for a rigid deductive proof.[4] Descartes gives a good instance of this aspect of deduction in a letter to M. Plempius.[5] 'The

[1] *Discours*, 6ième partie, § 8. [2] V.C., vii., 880.
[3] *Ibid.*, ix., 851. [4] Reg. VIII., § 46. [5] V.C., vi., 363-4.

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things I bring forward in the earlier chapters,' he writes, 'concerning the nature of light, the form of salt-particles, and the like, are not my principles, as your objections imply; they are rather conclusions which are proved by all the facts which follow them. . . . Thus, having taken for granted that salt-particles are somewhat long in shape and inflexible, I deduced the square form proper to grains of salt, and many other things besides which are very obvious to the senses. And my object was solely to explain these obvious facts by means of those assumptions, as effects traced down to their cause, and not in any way to prove them, seeing that they are sufficiently known already. On the contrary, I profess to have proved the latter by means of the former, as causes deduced from their effects.' The very same reasoning reappears in the *Discours* itself.[1] Referring to his *Dioptrics* and *Meteors*, he says: 'The steps in my argument seem to me to depend in such a way upon each other that just as the ones which come last are proved by those which precede them, as effects by their causes, so these earlier ones are proved by those which come later, as causes by their effects. Nor should any one imagine that I have fallen into the error known among logicians by the name of "circle"; for as these effects are for the most part rendered extremely certain by actual experience, the causes from which I deduce them serve less to prove than to explain them: on the contrary, it is the causes which are proved by the effects.'

We see, then, that whether a result is inferred *a priori* or *a posteriori*, it is always deduced after the mathematical model. Deduction, with Descartes, is in fact 'the only form of putting things together which can leave us certain as to the truth of what we synthesise'.[2] There is therefore no room left for any Theory of Induction in the modern sense of the word. Descartes contents himself with remarking that 'whenever we believe that from some particular or contingent fact we can infer a general and necessary conclusion,' we commit a mistake similar to that which we make when we 'conclude that the air is a vacuum on the sole ground that there is positively nothing in this aërial space which we can perceive by sight or touch or any other sense'. In a word, it is not with inferences from particulars to universals, or *vice versa*, that Descartes is primarily busied. His main concern is to keep throughout his reasoning to the guiding line of necessary sequence, and to start always from what is simple and absolute and intuitively

[1] *Discours*, 6ième partie, § 10. [2] Reg. XII., § 90.



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discerned. These are to him the sufficient as well as the necessary conditions of all true thinking; whether we choose to call this process by the name of induction or of deduction, of *a posteriori* or of *a priori*, matters little after all.

## VII.—*The Rôle of Experience in the Natural Method.*

We have seen that the course of an *a posteriori* proof involved a reference to Experience in the form of Experiment. Experiment had to decide which of several possible causes was the cause sanctioned by Nature herself. Descartes makes a corresponding appeal to Experience in his *a priori* demonstrations. Experience has to decide which of several possible effects has been attached by the Creator to a certain cause. Descartes is therefore constantly reasoning through the help not only of a natural light, but of observation and experiment as well. The part which experience plays in Descartes' system has been the subject of much controversy. The truth of the matter seems to be this, that whilst Descartes is provisionally dependent on experience for most of his particular results, the question as to whether a truth is derived with or without the help of experience affects neither his general results nor, on the whole, the nature of the method by which all these results, general or particular, are reached.[1]

The influence of experience on Descartes may therefore be characterised by saying that it required him to draw at least a provisional distinction between General and Particular Physics. This distinction is, however, purely provisional. Descartes' aim is ultimately to dispense with it altogether by including general and particular results alike under one and the same *a priori* system. His assumptions, as we have seen, are hypothetical only in the sense that he has not yet attached them to his fundamental metaphysical principles by means of an *a priori* chain of argument. He holds his *a priori* reasoning in reserve, at one time because he cannot give it without laying bare his whole system of Physics,[2]

[1] Very occasionally, it is true, a remark of Descartes seems to show us that the facts of experience are compelling him to recognise that his method is not universally applicable, and cannot afford altogether to neglect the nature of the data with which it has to deal. Thus in one of his letters (V.C., x., 203) he asserts that whilst nothing can be satisfactorily included in the science of Physics which is not deduced by a necessity of reason, yet exception must be made for what can be known by experience alone, as that there is only one sun, only one moon revolving round the earth, etc.

[2] *Cf.* V.C., vii., 380.

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and at another time because his *a priori* system is not sufficiently developed.[1] But the *a priori* is always waiting its opportunity to encroach on the *a posteriori*, and the general to swallow up the particular. In a letter addressed to 'M. de Cavendish,' Descartes apologises for having 'dared to determine things which depend on experience without having ever brought them to the test of experience';[2] and in another letter we read, 'My *Dioptrics* and *Meteors* where I have deduced from the principles of my Philosophy the explanation of several particulars of everyday occurrence show you after what fashion I am accustomed to reason about natural phenomena'.[3] The distinction in question is therefore of an essentially provisional kind.

Now the *locus classicus* in which Descartes establishes this distinction between general and special physics occurs in the *Discours*.[4] Descartes is explaining to his readers the order he has followed in his systematic pursuit of truth. 'In the first place I tried to discover in a general way the principles or first causes of whatever exists or can exist in the world, and this by considering God only who created it, and consulting nothing beyond certain seeds of truths naturally implanted in our souls. I then examined what were the first and most ordinary effects which could be deduced from these causes; and in this way I seem to have come across the heavens, the stars, the earth, and, on the earth, water, air, fire, minerals, and some other phenomena of the same kind, such as are most common and simple and consequently the easiest to understand. Then when I wished to proceed to those that were more special, such a variety pressed itself upon me that I judged it impossible for the human mind to distinguish the forms or kinds of bodies actually found on the earth from an infinity of other bodies which might have been found there had God so willed it, . . . without passing beyond causes to effects and making use of several special experiments.' In this passage we have an explicit declaration to the effect that in proportion as one penetrates farther into the details of science, experience, in the scientific form of experiment, practically becomes more and more indispensable: particular or experimental Physics must come to the help of the general or mathematical. 'I have been bold enough,' writes Descartes in one of his later letters, 'to wish to

[1] *Discours*, 6ième partie, § 3.
[2] V.C., ix., 521.
[3] *Cf.* also V.C., iv., p. 27.
[4] 6ième partie, § 3.

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explain the way in which the animal system develops from the very beginnings of its first existence; I refer here to the animal, taken generally, for as concerns man in particular, I should not dare to undertake the explanation, being short of the experimental evidence such explanation would require.'[1]

With the restrictions noted above, Descartes might well be called an experimental philosopher. His works are full of the evidences of observation and experiment. 'I have proved in detail,' he says, 'about as many facts of experience as there are lines in my writings.'[2] He is constantly being stopped by his inability to pay the cost of certain critical experiments,[3] or through having to wait till they are ripe for testing. 'Let me add,' he writes in a letter to M. Chanut,[4] 'that whilst I am waiting for the plants in my garden to grow up, in order that I may make some experiments on them that will help me to go on with my Physics, I devote some of my spare time to thinking over the special problems of morality.' He himself is an enthusiastic experimenter. During one whole winter at Amsterdam he went almost every day to the slaughter-house to see the beasts killed and to bring home with him such portions of the dead bodies as he desired to dissect at leisure.[5] Thus he tells us in a letter to Mersenne[6] that he is busy dissecting the heads of various animals 'to find out in what imagination, memory, etc., really consist'.[7] He has, further, a most excellent eye for the essential points in an observation or an experiment.[8] Finally, his love of the useful and the concrete constitutes another tie between Descartes and Experimentalism. We have seen that Descartes appeals to experience partly to decide which of several possible causes is the cause sanctioned by Nature herself, and partly to decide which of several possible effects has been attached by the Creator to a certain cause. In both cases Experience serves as the point of transition from the possible to the actual, from the abstractly rational to the concretely real. Descartes is

[1] V.C., x., 121. [2] *Ibid.*, ix., 343.

[3] *Cf. Discours*, 6e partie, *passim*; also V.C., iii., pref., p. 27; ix., 337.

[4] V.C., ix., 413. [5] *Ibid.*, viii., 174. [6] *Ibid.*, vi., 235.

[7] *Cf.* also: V.C., vi., 225; viii., 192, 227; x., 344, 351.

[8] *Cf.* V.C., vi., 97; *cf.* also V.C., vi., 182 and 210, which are especially interesting on account of their allusion to the Baconian method of Induction. Descartes looks on Bacon's method as a very convenient method for others to use when their object is to collect systematically such data as the exercise of his own method requires. *Cf.* Baillet, *Vie de Descartes* (livre ii., ch. xi., p. 149).

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intensely alive to the necessity of keeping in touch with reality, and is never weary of inveighing against the misuse of such pure abstractions of the mind as have no counterpart in Nature herself. 'What arithmetician,' he says, 'is satisfied with the bare severance, through an intellectual abstraction, of the numbers he uses from the objects they refer to? What geometer does not go in the teeth of his principles and obscure the transparency of his subject, when he asserts that lines have no breadth and a surface no thickness?'[1]

And yet despite this enthusiasm and this aptitude for experiment, despite this strong bias towards the useful and the concrete, the term 'experimental philosopher' would be a quite misleading one to apply to Descartes. It would be judging Descartes by the means he used to attain his end, rather than by the end itself. This end, as we have already seen, was to give a mathematical explanation of the universe, and it is this *a priori* point of view which, after all has been said on the other side, remains the characteristic and dominant feature of the Method and Philosophy of Descartes.

## VIII.—*The Origin of the Natural Method.*

The story of Descartes' Method would be incomplete without some reference to the conditions under which it arose and took shape in Descartes' own mind. The method, as we have seen, is essentially a mathematical method. It is mathematical in its spirit and in the form which it assumes. It is equally mathematical in its origin, as Descartes himself confesses. Moreover, the leading mathe-

[1] Reg. XIV., § 116. As means or helps such pure abstractions may indeed play an important part in the elucidation of phenomena, as is seen in the case of subsidiary angles in Trigonometry, Descartes' own 'indeterminate multipliers,' the circles of the celestial sphere and imaginary quantities generally. 'Do we not in Geometry,' says Descartes, 'make assumptions concerning some quantity or other without weakening in the least the cogency of the proof we give? and yet these assumptions often fail to be borne out by our experience of the real nature of that quantity in Physics' (Reg. XII., § 73). Again, in the case of Mathematics, the very nature of the subject precludes us from asking whether these abstractions have a real foundation in the objects themselves or are the arbitrary inventions of our own mind: 'the question as to whether they have any foundation in reality belongs rather to the domain of Physics'; but once these 'subsidiaries' claim a reality *per se*, they are being misused, and must inevitably lead to error and confusion: mere modes are taken for genuine qualities, and mere numbers clothed with mysterious attributes.

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matical methods of his own day are, as we shall try to show, reproduced in the main lines of the universal method which is developed in the Regulae.

In what seems to have been the first public statement of his Method, at a *soirée* in the house of M. de Bagny, given in Paris in November, 1628, Descartes asserted that he knew of no surer means of avoiding error than the observance of a certain method which he had derived from the fundamental principles of mathematics and to which he gave the name of 'Natural Method'.[1] He added that he believed there was no truth which could not be proved by means of it. A precisely similar confession is made in the *Discours*, immediately after the enunciation of the four rules. 'Those long chains of reasoning, so simple and so easy, which geometers are in the habit of using in solving their most difficult problems, had brought me to reflect that all things which men can possibly come to know follow each other in the same connected way, and that provided one never accepts false for true and always keeps to the order required for deducing them one from the other, there are none so distant that they cannot be reached, none so secret that they cannot be discovered.'

This basing of the 'Natural Method' on the principles of mathematics is, in Descartes' eyes, necessitated by the nature of reason itself. Thought has only to be left hidden in its own natural light, and it cannot but conceive methods that are mathematical in their clearness and their certainty. Thus the two forms of analysis which were prominent in the mathematics of Descartes' day are described by Descartes in a significant passage[2] as 'nothing else than the spontaneous fruit sprung from the innate principles of this [natural] method'. Thus the innate principles of Descartes' method are also the innate principles which presided over the formation of these two methods of analysis. In studying these mathematical methods as embodied in the mathematics of his day, Descartes therefore became conscious of the form which his own method must necessarily take if it wished to be natural, or in other words clear and certain.[3] Let us then briefly consider these two methods and see in what way and to what extent they would have been likely to direct the mind of the youthful Descartes towards the discovery of the universal method of the Regulae and *Discours*.

[1] *Cf.* Millet, 'Descartes avant 1637,' *Thèses Français de Doctorat-ès-Lettres*, 2ième série, 1894, p. 152.

[2] Reg. IV., § 19.

[3] *Cf.* Reg. X., § 61.

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The first of these methods is what Descartes calls the analysis of the Ancients. We consider the problem as already solved. Then by a process of regressive deduction we simplify it step by step until we reach a fact which is either obviously true or obviously false. If false, the argument has culminated in a *reductio ad absurdum*, and the assumed solution is at once discredited; but if the ultimate fact reached is obviously true, we then proceed to prove the problem synthetically and directly by taking the obvious truth itself as our starting-point and mounting up along a series of successive deductions and by the very steps marked out by the previous analysis until the *demonstrandum* is at length secured. That Descartes was not unmindful of this analysis of the ancients is clear from Reg. V., where we are told that the Method will be observed in every part if we gradually refer propositions that are involved and obscure to simpler propositions, and then, starting afresh from the intuition of all the ultimately simple propositions, attempt to mount up to the knowledge of all the others by means of the very steps that helped us down to our starting-point. The rule might indeed be summarised in the words: 'the whole method consists in following point by point the ancient method of analysis'.

If we turn now to Rules VI. and VII., we shall see in the first place that what the former essentially requires is that at each step in a deduction we should be able to trace the precise nature of the connexion between the quaesitum and the datum. It is in fact 'in this one form of observation that science essentially consists'.[1] We shall also see that the essential requirement of Rule VII. is that all enumerations should be adequate and methodical. Now it is hardly too much to say that these two separate requirements are secured by the use of the second of the two mathematical methods with which Descartes was familiar as a schoolboy, the method of modern Algebra.

It is important to notice that shortly before Descartes appeared on the scene Viète had introduced an innovation in the notation of Algebra which gave quite a new significance to its method. He introduced the use of letters to denote the known quantities of a problem. Before Viète these known quantities had always been expressed arithmetically, and the consequence was that by means of addition, subtraction, multiplication and division the numerical quantities representing the data so ran into each other that it soon be-

[1] Regula XVI., § 131.

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came quite impossible to trace the relations between quaesita and data. Viète's reform enabled one to see at a glance at any step in the solution what these relations were. Thus $(a+b)$, $(a-b)$, $ab$, $\frac{a}{b}$, $\sqrt{a^2+b^2}$ are expressions which tell their own tale; to look at them is to see at once the operations made to obtain them. But if we write 7, 1, 12, $\frac{4}{3}$, 5, what is there to tell us that 7 is obtained by adding 3 and 4 together, that $1=4-3$, that $12=4\times 3$, that $5=\sqrt{4^2+3^2}$?—12, for instance, might just as well have expressed the product of the factors 6 and 2, and 5 might have expressed the result obtained by adding 2 and 3 together.

That Descartes was fully alive to the importance of this characteristic feature in the notation and method of modern algebra is obvious from Reg. XVI., § 129.[1] 'We are here making abstraction,' he writes, 'of numbers, no less than we did a little further back of geometrical figures, and of every other thing. Our reason for so doing is . . . chiefly that those portions of the matter which contain the essence of the difficulty shall always remain distinct, and not get mixed up with numbers that tell us nothing at all.' It is by keeping the elements in a solution separate throughout the process that Descartes is able to compare the different steps and results with each other, and note which of them is simplest and wherein the complexity of the others consists.

The new algebraic notation points thus in precisely the same direction as Reg. VI. The same may be said of it in reference to Reg. VII. Thus let $axx+bx+c=0$ be an equation written down *à la* Viète. Solving it we find that $x=\frac{-b\pm\sqrt{bb-4ac}}{2a}$. Hence we conclude by means of an adequate and methodical enumeration that if $bb\rangle 4ac$, the equation has two real roots; if $bb=4ac$, the roots are equal; and if $bb\langle 4ac$, the roots are imaginary. But if the equation is given in the form $2xx-11x+12=0$, we find on solving it that $x=\frac{3}{2}$ or 4, and enumerations are neither possible nor called for.

These comparisons may seem at first sight to be somewhat superficial. But we must remember that from a very tender age Descartes had busied himself with algebraical equations, and that the two issues which a mathematician has perpetually before him in the theory of equations are

[1] *Cf.* also a page of Descartes' correspondence, ed. Victor Cousin, ix., 150.

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just these two: (1) the form of the connexion between data and quaesita; (2) a complete enumeration of all possible cases. Let us take a typical example.

Let $\alpha, \beta$ be the roots of the equation $ax^2 + bx + c = 0 \ldots (1)$. Then we have, in virtue of Harriot's discovery with which Descartes was quite familiar,

$$a(x - \alpha)(x - \beta) = 0$$

$$i.e.\ a(x^2 - \overline{\alpha + \beta}\, x + \alpha\beta) = 0 \ldots (2).$$

The question now is: what are the relations connecting $\alpha, \beta$, the two values of the unknown quantity $x$, and the quantities of which we are in search, with the given quantities $a, b, c$? Comparing the two identical equations (1) and (2), we get at once by equating coefficients,

$$\alpha + \beta = -\frac{b}{a};\ \alpha\beta = \frac{c}{a},$$

results of great generality and of fundamental importance. By means of these two equations we deduce the values of $\alpha, \beta$.

Thus $\alpha = \dfrac{-b + \sqrt{bb - 4ac}}{a}$; $\qquad \beta = \dfrac{-b - \sqrt{bb - 4ac}}{a}$.

The question now is: what are the relations which must hold among the data $a, b, c$, in order that these roots may be respectively real, imaginary, or equal? A methodical and adequate enumeration of all the possible cases shows us at once that the roots are real, imaginary or equal according as $bb$ is greater than, less than, or equal to $4ac$.

This example may help us to realise the extreme importance of Viète's notation, and to feel the influence which the new method this notation first made possible was likely to exercise over the mind of the young philosopher, who at the first was a mathematician rather than a philosopher, and who, in his search after the true method, deliberately allowed himself to be guided by the indications of Plato's analysis and the modern Algebra of Viète.[1]

We have now seen what a large share these two recognised mathematical methods of Descartes' own day must have had in the suggesting and shaping of his own natural method. They anticipate, as we have seen, the main content of the Rules V., VI. and VII. Now these rules 'state and unfold the precepts of methodical order';[2] they are, in Descartes' opinion, 'the only ones which the pure reason need observe in the preliminary handling of any problem'. In other words, they contain the whole method of Descartes.

[1] See *Discours*, the paragraph immediately following the enunciation of the four rules.

[2] Reg. VIII., § 44.

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## IX.—*The Originality of Descartes.*

In dealing with the question of the origin of Descartes' method, we have been led to see that it grew naturally out of Descartes' own mathematical studies. In this sense it was no original creation, being in its essence as old as mathematics and natural reason itself. Descartes' originality is the more powerful on account of there being nothing miraculous or unaccountable about it. His discoveries do not flash from him like Minerva from the head of Jupiter, but are bound up with the intense unity, or as we might put it, concatenation of his rational life. 'I am much obliged to you,' he says in a letter to a friend, 'for professing delight at my not having allowed myself to be anticipated in the publication of my ideas. I have never had any fear, however, on that score; for, apart from my indifference as to whether I may chance to be the first or the last to write what I do write, provided only that what I write is true, my opinions are so welded together and depend so vitally on one another, that no one of them could be appropriated unless all the others were previously known.'[1]

It is the context in fact which can alone explain the text, and, in the case of Descartes, the true context of every truth he discovered was the whole system of knowledge which his method had mastered and organised.[2] In this systematised knowledge lay the secret of Descartes' strength and the source of his originality. In his opinion a man is original, not through happening to be the first to discover or invent this or that, but in so far as he has made the thoughts and truths he deals with his own, incorporated them, as it were, into the tissue of his own mind. 'Whatever you know is yours entirely,' he says in a letter to a friend, 'even though you may have learnt it from some one else.'[3]

It is this assimilation of a truth as an integral part of one's rational life which stamps its utterance as original, and makes plagiarism quasi-impossible. 'Water,' we read, 'always looks like water, but its taste when drawn from a spring is one thing, when drawn from a pitcher, quite another.' Descartes is therefore very little concerned about the novelty of his opinions. 'I cannot sympathise with those,' he says, 'who desire that their opinions should appear novel; on the contrary, I try to suit mine to those of others so far as truth permits me.'[5] He disclaims, in fact, any pre-

[1] V.C., vii., 880. [2] *Cf.* V.C., vi., 53, 105, 243; vii., 5, 880.
[3] *Cf.* V.C., vi., 148; also viii., 442. [4] *Ibid.*, vi., 150.
[5] *Ibid.*, ix., 166.

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tence of originality in the sense of novelty or strangeness: he is anxious not so much to know first as to know truly. 'As for opinions which are entirely my own,' he says, 'I make no apology for their novelty inasmuch as I am certain that one has only to consider well the reasons which I give for them to see that they are so simple and so appeal to one's common sense that they must seem less extraordinary and out of the way than any other opinions one can entertain on the same subjects. Nor do I boast in the least of being the first to invent any of them; my cause of boasting is rather this, that I have never accepted an opinion simply because others have or have not entertained it, but solely because my reason has persuaded me to do so.'[1] And this is the Alpha and the Omega of the method of Descartes.

[1] *Discours*, 6ième partie, § 10.

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# IV.—A CONTRIBUTION TOWARDS AN IMPROVEMENT IN PSYCHOLOGICAL METHOD. (III.)

(*Conclusion.*)

By W. McDougall.

## Remarks on the Nature of Neurosis in General.

Hitherto, I have dealt with only the simple motor reactions of the nervous system, and before attempting to deal with more complex functions of the mind, it is necessary to say something of the probable nature of neurosis in general. So far as we know, the nervous system consists wholly of distinct units, the neurons; *i.e.*, the nerve cells and their processes. The neurons are in groups and sub-groups, the members of which are in functional continuity of varying intimacy, through proximity of the terminal twigs of the processes of one with similar twigs or with the cell bodies of others. It is commonly agreed that a simple reflex action consists in the passage of nervous impulses through a group of such neurons arranged in a more or less serial manner, leading from the afferent to the efferent nerve fibres. It is a not improbable assumption that this is the type of all neurosis; that the neurosis concerned, in the most complex mental activity, consists also of the passage of an extremely complex series of nervous impulses, through extremely complex groups of neurons from the afferent towards the efferent side; the impulses being variously reinforced in their passage through the cell bodies. According to this view all mental process is but a complication of motor re-action to stimuli affecting the sense organs; the neurosis concerned in cognition and reasoning is essentially conative in character, all the neural impulses pass onwards towards their natural goal, the nuclei of the efferent nerves. In man, a very great complication may be assumed to have resulted from the acquirement of speech: a very large part of the nervous impulses find their goal in the motor speech-centres without actually determining movements of the organs of speech. It is when the nervous impulses find their natural goal in appropriate motor innervation that they rapidly become organised on repeti-

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tion, and lose their conscious accompaniments. This is well illustrated by our first example of the morning call. In this case, there are two distinct motor outlets for the impulses excited by the sounds, namely, the innervation of the speech organs, and that of the muscles that raise the body. As the response becomes automatic, the energy of the nervous excitement becomes drawn off more and more into the tracts leading to the speech organs, for on each repetition of the answer the afferent impulses from the muscles used will tend to organise still further the tracts concerned; and so the nervous excitement, finding a natural outlet in the movements of the speech organs, soon ceases to pass into the tracts leading to the getting-up muscles. It is, I think, a fair assumption in the case of our last example, that if the waiter were constitutionally lazy and in the habit of answering calls with a simple 'Yessir,' and no other immediate movement, then he might answer 'Yessir' while continuing to sleep.

I have already made use of this assumption as to the general nature of neurosis, and I shall continue to do so in the following pages for the sake of convenience of description, since it seems to be well founded and highly probable.

If we adopt this view of neurosis, we must suppose that when neurosis is accompanied by psychosis, consciousness is determined by the passage of the nervous impulses along the whole or some parts of the tracts of neurons concerned, in whatever part of the nervous system they may lie. For I have already pointed out that the assumption that consciousness is generated in some particular part of the brain, whether in the pineal gland, the medulla oblongata, or the frontal lobes, is quite unfounded and unnecessary. Here I would point out that the evidence is all the other way. For all that we know of localisation of function in the cerebral cortex, and especially of those cases in which by a local lesion, such as a hæmorrhage or an embolus, the possibility of some particular form of consciousness is abolished, and of the phenomena of the epileptic aura, indicates that consciousness is immediately determined by neural processes, now of one, now of another part of the cortex. The phenomena of double personalities and of split-off parts of the self forming minor personalities indicate the same fact. For these cases are only explicable by the assumption that groups of neurons become functionally discontinuous with the rest of the nervous system, and form a separate minor nervous system capable of producing consciousness, and even some degree of self-consciousness.

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## The Conditions of Occurrence of Consciousness in Terms of Neural Process.

These considerations prepare the way for the attempt to describe complex processes of the mind in terms of neural processes, and to define more accurately than has yet been done the conditions of occurrence of consciousness in terms of those processes.

In making this attempt, I cannot do better than to begin by accepting without reserve the doctrine of noetic synthesis and apperception as laid down by Stout in the second volume of his *Analytic Psychology*. We read there that 'In the developed consciousness, the whole mind is more or less perfectly organised into a system of noetic units, in which partial apprehensions are subordinated to more comprehensive apprehensions, and these in their turn to others still more comprehensive'. The noetic units or syntheses are mental dispositions built up by apperception, a process by which every presentation is appropriated by some noetic unit. 'Apperception may be defined as the process by which a mental system appropriates a new element, or otherwise receives a fresh determination;' it is the process by which 'products of past process determine and are determined by succeeding changes'.

As we have already seen, Stout avoids physiological considerations by adopting the hypothesis of psychical dispositions. The latter seems to be the same thing as a mental system in a passive state, and Stout explicitly states that it may be regarded as a physiological fact. If we attempt to express this doctrine of mental systems and apperception in terms of neural process, we shall find that there is implied in it the proposition whose truth I am endeavouring to establish, namely, that consciousness accompanies only the process of establishment of new connexions among neurons. For a mental system in its passive state is in its physiological aspect a grouping of neurons forming a more or less complex path, by which afferent nervous impulses pass on towards their efferent goal in a manner determined by the nature of the path. The activity of a mental system consists in the passage of nervous impulses through it in this manner. The mental system has been built up from a much simpler nucleus, probably a simple reflex nervous arc by repeated apperception, 'the process by which a mental system appropriates a new element, or otherwise receives a fresh determination'. In terms of neural process, apperception must be conceived as an extension and further complication of a mental system, by the incorporation into it of other neurons and systems of

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neurons, so that the complex path no longer leads to quite the same, but to a modified efferent outflow. This process seems to be determined in two ways. It may be by the presence of some novel element in the afferent group of impulses, for whose reception and transmission the system is adapted, so that the system is no longer perfectly adapted for their transmission; impulses then overflow the physiological barriers of the system, spreading over to neurons hitherto unconnected with the system; the physiological barriers once passed are destroyed or partially destroyed, there is established a connexion between the system and the neurons newly affected, the latter are incorporated into, and henceforward form a part of the former,—the mental system has appropriated a new element. The other way in which a system may receive a fresh determination is by the establishment of inter-connexions with other systems, through their excitement contemporaneously, or in close proximity in time, *i.e.*, by association by contiguity in time. For there are good reasons for believing that the physiological barriers of a system are not absolute; that when a system A is excited, although the main current of the flow of impulses passes through the nerve-paths constituting the system, yet a fainter excitement spreads from the system through a large area of the whole nervous system. Further, we must believe that if any other system B, forming a part of this faintly excited area, be excited at the same time or immediately afterwards, then from it also there spreads a faint excitement through a large area and passes with especial ease and force along the tract by which the faint excitement has spread from A to B. This tract is then more permeable in the future, and any excitement of A tends to spread to B also, and conversely. Between the two systems A and B there is thus established a connexion, and they form now a single, more complex system, of which A and B are sub-systems. The motor re-action to which the excitement of this new system leads, is the resultant of the re-actions of the two systems, and may appear as a more complex re-action, showing the features of both the constituents, or it may appear as a partial abolition or inhibition of the one by the admixture of the other, according as they are similar or antagonistic in nature.

Whether apperception is ever determined in the former manner, without some previous effect of the latter kind, or whether in fact the two processes are not essentially similar in nature, is an interesting but difficult problem, the consideration of which is not essential to the purpose in hand.

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By relatively simple mental systems, our ordinary automatic movements are carried out. The paths have been organised by frequent repetitions of similar series of afferent impulses, each of which, in so far as it was different from its predecessors, determined apperception (the extension and complication of the system by the establishment of new connexions), and so modified the motor re-action; while the part of each series of impulses that was coincident with its predecessors ran in the paths already organised. In purely automatic movement, simple or complex, the series of afferent impulses are all coincident with previously experienced series, they run to their motor goal through well-organised systems, there is no making of new nervous connexions, no apperception, no consciousness. In learning any complex action, there is at first much varied attention, first to one part, then to another, and to the impressions from them; there is much consciousness, continual apperception, *i.e.*, continual organisation. Then as parts of the total complex movement become automatic, while others still require attention, the movement is in part carried out by organised paths or sub-systems, without further apperception and without consciousness, and in part by sub-systems that are still undergoing fresh determinations, still involving apperception and consciousness. In every volitional movement, as distinguished from purely automatic movement, there are concerned neural processes of these two kinds; a large part of them are automatic, proceeding to their motor goal by organised sub-systems, while some pass partly by new or relatively new paths, and in so doing organise them, *i.e.*, there is apperception, attention and consciousness.

Turning now to cognition, and keeping its conative aspect before us, we must recognise two kinds of process concerned in any apprehension of an object. The part of the object presented in consciousness is but a part of an implicitly apprehended whole. The implicit apprehension consists in the excitement of a mental system corresponding to the previously presented parts of the object; the impulses excited by these parts pass to their appropriate motor goal by well-organised paths without exciting consciousness. But any novel elements in the object excite impulses that find no such organised paths, they determine an extension of the system by incorporation of new elements; there is establishment of new connexions, *i.e.*, apperception, and with this establishment of new connexions consciousness is aroused, a consciousness of all the novel elements that are thus apperceived.

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Thus, to make use once more of the much-used orange, when I see an orange and go to take it up, I am conscious of its general shape and colour, and chiefly of its position, but there is much besides that is implicitly apprehended. If I take it in my hand, the strength of the muscular contractions, involved in raising it, is accurately pre-adapted to its weight, as shown by the fact that if it is heavier or lighter than oranges usually are, I fail to move it in the first moment, or it flies up unnecessarily high. The weight of the orange was implicitly apprehended, but I was not conscious of it. It is not, as Spencer seems to imply in discussing this example, that I consciously expected in a dim way a certain weight. It is merely that a mental system corresponding to oranges in general has been built up in the brain, and when I put out my hand to take it up, nervous impulses are appropriately co-ordinated in strength and direction by a sub-system which has been built up by previous apperceptions of the weight of oranges; the excitement of this sub-system constitutes the implicit apprehension of the weight of the orange.

I do not, for the purpose in hand, make any distinction between the afferent nervous impulses that lead to the perception of objects in the external world, and those from the muscles, joints and other structures that are concerned in the carrying out of movements. The afferent impulses concerned in the carrying out of an automatic movement, or those parts of a complex volitional movement that go on automatically, are implicitly apprehended in exactly the same sense as those originated by the parts of a complex external object that though not attended to play a part as the 'fringe of thought' in determining the whole mental process. It is only when series of afferent impulses are frequently repeated with but very slight differences, and without fresh determination of the mental system from within, that the apprehension of them becomes wholly implicit, that the mental system excited becomes completely adapted to transmit them to their appropriate motor goal, without any fresh apperception, without any consciousness. These conditions are seldom realised except in the case of rhythmically repeated movements, such as those of walking and cycling. When we look at a complex object there is continual apperception, for such an object contains many parts in many different relations to one another, and it can scarcely be presented twice without change in the relations of its parts, either to one another, or to its surroundings as they affect the sense organs, or without some change having taken place in the mental system concerned; hence as Stout says: 'In almost every moment of waking



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life, an apperceptive process is taking place. Whenever an object is attended to, the presentation of it is apperceived.' It is instructive in this connexion, to try to attend continuously to a minute black spot without distinguishable parts on a smooth white surface. In this object there is little or nothing to be apperceived. We can only remain intermittently conscious of it by apperception of its relations to any other distinguishable objects in the field of vision or by continually bringing it into relation with some presentation of self, a process in which language seems to play a large part. To remain conscious of the simple point itself would be inconsistent with the very nature of thought; for thought is a process of continual transition, to arrest its flow but for a moment is to destroy it.

In every complex object that affects the sense organs, we must distinguish three kinds of parts. Firstly, there are parts that are undiscriminated because there is no mental system corresponding to them; they fail to affect mental process in any way; they form the undifferentiated part of the objective continuum, a part that may be said to be in the preconscious stage as regards the particular mind that they fail to affect. Secondly, there are those parts which are apperceived, to which we attend, of which we are conscious. Thirdly, there are those parts that, though not attended to, are implicitly apprehended; they may be said to form the post-conscious part of the presentation-continuum.

Apperception then is one aspect of the attention process, and consciousness occurs only in association with apperception, *i.e.*, it occurs only as the immediate correlate of the process of establishment and organisation of new connexions between neurons and systems of neurons.

I have said that this conclusion is implied by the doctrine of apperception and noetic synthesis, as put forward by Stout, and I will here make a somewhat lengthy series of quotations to justify this statement, and so lend weight to my conclusion. In vol. ii., p. 3, we read, 'The antithesis between noetic synthesis and contiguous adhesion is brought out in the clearest light in the passage of attentive into automatic process. In proportion as automatism supervenes, association becomes substituted for thought-control, and in the final stage completely supplants it;' on p. 9, 'It is not enough that the residua of previous impressions should be re-excited. Their re-excitement must bring with it a peculiar modification, resulting in a new growth both mental and physiological;' and on p. 40, 'When we consider a noetic synthesis not merely as involved in this or that conscious process, but

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as a mode of mental grouping which persists as a disposition when it has ceased to operate in actual consciousness, we have the idea of an apperceptive system. It is through the gradual growth and differentiation of such systems that new phases of noetic synthesis arise.' On p. 73, in treating of relatively automatic movements he writes, 'They are automatic parts of a process which as a whole involves concentrated attention. Attention is engrossed by a series of fluctuating conditions and by the nature of the end to be attained. But the adaptation of movements to the perceived conditions takes place in a more or less automatic way;' and on p. 87, in treating of conation, 'It is separately felt as such, when and so far as the special conditions of its partial revival vary in a way which is not thoroughly familiar, and so call for a re-adaptation by relative suggestion or otherwise, which cannot take place in an automatic manner'; on p. 112, 'The process of apperception substantially coincides with that of attention. . . . The attention-process, as we saw, is characterised by systematic unity and relative novelty. Under the head apperception, we are especially concerned with the relations of the new to the old, in so far as it gives rise to modification of the old. We consider the whole process as one by which the mind grows;' on p. 113, 'The need for the apperceptive process and the stimulus to it lies in the initially foreign and alien nature of the new element, and the consequent antithesis between its disturbing novelty and the internal self-development of the system'; on p. 115, 'The whole itself is nearly always presented in the way of implicit or schematic apprehension. To say nothing of other difficulties, the narrowness of consciousness forbids that it should, at any moment, be presented in the fulness of its details. Hence a mental system, even when it enters into conscious process, always remains to a very large extent beneath the threshold of consciousness;' on p. 118, 'Where attention is not present, there is no apperception, but mere assimilation. . . . Assimilation there must always be, inasmuch as the existence of a given experience coincides with the re-excitement of some pre-formed disposition. Thus in automatic actions, the impressions which guide us are all assimilated, but not apperceived. Whenever, through habitual exercise, an organised group of psychical dispositions has become so pre-conformed to a special class of familiar experiences, that it assimilates them with a certain degree of ease and rapidity, apperception becomes needless. There is the less need for it, the more perfect is the mental pre-adjustment.' And on p. 122, Stout himself deals in physiolo-

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gical process, instead of psychical dispositions, for he writes, 'Even when the controlling guidance of a central thought ceases to operate as a unifying principle it may leave behind it, as a substitute, a nervous arrangement, which fulfils an analogous function independently of consciousness'.

## Completion of the Analysis of a Simple Case of Experience.

It is interesting to return now to the analysis of the spoon-game, the instance that was chosen as a simple case of experience and the type of all mental growth, and to complete it by the application of the doctrine of apperception. We saw that the total result of the game on my mind or nervous system was to establish an automatic re-action to a certain feature of the objective continuum hitherto undifferentiated, namely, the peculiar relation between a stimulus A, constituted by a particular voice speaking my name into my left ear, and the particular stimulus B, the heat of the spoon on my cheek. On the first occurrence of A, it occasioned, in virtue of its character merely as a loud sound in my left ear, the excitement of a mental system long ago built up by apperceptions of many loud sounds, and the excitement of this system leads automatically to the turning of my head to the left; the stimulus in its character as a loud sound is in the post-conscious stage, the re-action is reflex or instinctive. But the stimulus has other features; it is apperceived by mental systems in higher levels of the brain, corresponding to the sound of my name, as my name spoken by a particular voice; the excitement of this system, with the accompanying apperception and consciousness, leads or tends to lead to some such motor re-action as the saying 'Yes? Well! what is it?' But as yet there is no mental system corresponding to the peculiar relation between A and B. When B occurs there is in a similar way a post-conscious re-action, in the jerking away of my head, to B in its character merely as a violent stimulus to the side of my head; while at the same time B in its character as a hot object on a certain spot of my cheek, is apperceived by a system higher in the brain; I am conscious of B as such. Then owing to the contiguity in time of the excitement of these two systems, appercipient of A and B respectively, there is established a connexion between the two, each is modified by the other, and this mutual modification is the apperception of the causal relation between A and B, and there is differentiated a new sub-system corresponding to this relation. This rela-

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tion now enters for me upon its conscious stage of existence. On the recurrence of A the new sub-system apperceives it as A-related-to-B, and leads to a new motor re-action, consisting in a modification of the one re-action by the other, a resultant of the two. When this new object A-related-to-B has been presented several times, with but very slight variations in its constituent parts, the elements of novelty in it disappear, consciousness diminishes, and soon the sub-system leading to the new motor re-action becomes completely organised, the relation of A to B enters for me upon its post-conscious stage, and the whole process goes on automatically, while attention is directed elsewhere. There seems to be another principle at work also, one that was noted in connexion with the analysis of the morning call and the automatic response, the principle, namely, of the condensation of nerve paths, the tendency for all the energy of a stimulus to be drawn off into one of two alternative motor centres. For A ceases to be either apperceived or implicitly apprehended, as my name spoken by a particular voice; the corresponding mental system that leads to the response 'Yes? What is it?' does not become organised, but simply ceases to be excited.

## The Premisses of the Preceding Argument Generally Admitted.

I have already attempted to show that my thesis as to the occurrence of consciousness is found to be contained in Stout's doctrine of apperception, as soon as we translate it into terms of neural process, and I wish to point out that the main premisses of the argument are very generally accepted. What I have said of the more definite organisation of the paths of the lower parts of the nervous system, and of the greater complexity and possibility of establishment of new connexions in the higher parts, is well put in the following sentences by Waller:[1] 'The higher the brain the greater the mass of the formed formable material. But the further the differentiation shall proceed of formable material, the further it must already have proceeded of formed material. The higher brain must include subordinate highly specialised and economically working mechanisms—guiding parts.' 'And yet the further the brain has developed within the span of life of its possessor, the greater the differentiation of function and of organ out of the mass of formable material.' 'The

[1] *Brain*, xv.

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higher the brain the less the fixity, the older the brain the greater the fixity.' And again, 'At the lowest level the representation is most definite and fixed, the canalisation of conductors is most closed, the differentiation of the central organ is most complete. At the highest level the representation is least definite and most fluctuating, the canalisation of conductors is most open, the differentiation of the central organ is least complete.'

James gives expression to the same truth when, after defining instincts as automatic re-actions of the nervous system, he writes that man differs from animals in having not fewer but more instincts, 'though the animal richest in reason might be also the animal richest in instinctive impulses too, he would never seem the fatal automaton which a merely instinctive animal would be' (vol. ii., p. 393).

The fact, that consciousness accompanies novel and relatively novel affections or activities of the brain and dies away when these activities are repeated, is also fully recognised. Thus Wundt: 'Jede Uebung besteht in der Mechanisirung ursprünglich mit Bewusstsein geübter Willenshandlungen'.[1] So also Bain in a recent article in MIND (vol. iii.). 'They (the intellectual trains) also become conscious according as Habit has not supervened to give them a mechanical or automatic flow'; and again: 'Actions properly voluntary lose their character under two extremes or gradations—on the one hand, their shading into the Reflex, and on the other hand, their passing into the Habitual. In both cases, they part to a corresponding degree with their conscious character, as is seen by their giving room for other occupants of the conscious area.' Without professing to understand in what sense the Reflex and the Habitual are two extremes, I regard these sentences as containing a very frank recognition of the unconscious mental constituent on the part of a leading exponent of pure psychology.

But although these two great groups of facts are thus fully recognised, their significance when considered together and in conjunction with the general character of neurosis, has, so far as I know, never been fully and explicitly pointed out as giving the clue to the conditions of occurrence of consciousness. In face of them and of all the considerations adduced above, it must, I think, be admitted that the essential condition of the occurrence of consciousness is the making of new nerve paths, the establishment of new functional connexions between neurons.

[1] *Philosophische Studien*, p. 378.

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## Some Corollaries of the above Proposition.

It will be seen that, accepting the principle of continuity, it is a logical inference from this doctrine that all adaptation of nervous re-action to environment in the past has been accompanied by consciousness; that the organisation of the simple reflexes and instincts of the lower animals was accompanied by a consciousness of a very low kind; that in man the reflexes of the cord and lower parts of the brain were organised long ago, before man was man, and that some low form of consciousness accompanied their organisation, just as in the adult there are automatic habitual actions carried out by nerve paths that were organised during childhood with an accompanying consciousness.

It is a further inference that, under two conditions, consciousness would become impossible, either if an animal should become perfectly adapted to its environment, or if an individual should have lived so long that all the parts of its nervous system had become mapped out into well-organised paths of automatic reaction. For in the case of an animal perfectly adapted to a limited environment, all its movements would be automatic, all apprehension would be implicit, all its mental processes would go on without consciousness. There would be no apperception, no establishment of new relations among nerve paths in response to novelties in the environment, if there were no such novelties, if for every possible combination of stimuli there had been organised a mental system leading to an appropriate motor re-action. It seems probable that such a state has been almost reached by such lowly animals as Lingula, a Brachiopod, that seems to have persisted as a species unchanged from Pre-Cambrian times up to the present day. Living in the deep sea, such an animal is exposed to an environment of very limited complexity. It may be reasonably supposed that its nervous system is completely organised to carry out automatically its few motor re-actions to the comparatively simple impressions made upon its sensory nerves.

But there is little reason to hope or fear that we shall attain 'Nirvana' by this route. Our environment seems to be infinitely complex and varied; and in the past, natural selection, or whatever forces have determined evolution, seems to have so worked that while adaptation has proceeded by establishment and organisation of new nervous connexions, there has been at the same time a continual increase in the number and complexity of new neurons (those of level 4 in our scheme), affording possibilities of the forma-

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tion of new and more complex combinations of nerve paths, of more accurate, detailed adaptation to an increasingly complex environment. And it would seem probable that this multiplication of neurons has been, and will continue to be effected at a relatively more rapid rate than their organisation into fixed paths takes place, so that there are ever increasing possibilities of the establishment of new relations among nerve paths, and of a more intense and more varied consciousness. This must be the case in progressive species at least. The highest animal is not the one whose nervous system is most completely organised for re-action upon a limited environment, and in which consciousness no longer occurs, but the one whose nervous system affords the greatest possibilities of new adaptations, of new relations among nerve paths, and so of the most complex and intense consciousness.

## On Painful Consciousness and the Action of Anæsthetic Drugs.

There is one form of consciousness, and one only, which, as it seems to me, it may be proper to describe as 'Anoetic,' and that is the consciousness of pain in certain cases. Pleasurable feeling may be said to occur always in conjunction with healthy normal mental process; there is always some noetic element in the consciousness. Perhaps in painful feeling too, there is always some noetic element, some localisation or recognition of the pain as such or such. But certainly the pain itself may be very intense, while all other contents of consciousness are of very low intensity. By the one word pain, we denote both the sense of strain or of unpleasant tone accompanying the higher mental processes, and physical pain arising from violent stimulation of afferent nerves, or stimulation of nerves in certain abnormal states. Although these two things in extreme cases seem very different, yet they are commonly recognised as being essentially similar. The comprehensive formula for pain, given by Stout, seems to apply strictly to the former kind only. The formula runs: 'An activity which is thwarted or retarded, either by the presence of positive obstructions, or by the absence of co-operative conditions, or in any other conceivable way, is painful in proportion to its intensity and complexity'. And again: 'The antithesis between pleasure and pain is coincident with the antithesis between free and impeded progress towards an end'. We may apply this formula to the analysis of a state of acute vexation. When I am in this distinctly painful state I have a strong feeling of the

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necessity for doing something, and yet nothing can be done. There is no appropriate outlet in motor innervation for the surplus of nervous energy excited; I make various violent purposeless movements and explosive utterances; I form rapidly, and as rapidly give up, various projects for immediate action, perhaps all impossible, and utterly inconsistent with one another. This may perhaps go on until I conceive the idea of something to be done to remove the source of vexation. At once the vexation disappears, as I set about giving effect to my idea, the nervous excitement finds vent in rapid and effective trains of thought and action. If we attempt to express all this in terms of neural process, we must recognise that the essence of the whole matter is the setting free of excessively powerful nervous discharges that do not run a normal course to an efferent goal. Instead of flowing through co-ordinated mental systems in an orderly manner to an appropriate goal, and setting up new relations between allied systems and sub-systems, the energy of the discharge is so great that besides flowing in natural paths, it breaks across the physiological barriers that demarcate the systems from one another in an utterly disorderly and unmeaning manner, having little or no reference to the paths determined by heredity and experience; hence the utterly disorderly, though intense consciousness, hence the incongruous ideas, the ineffective explosive movements, the general visceral disturbance of heart, respiration and blood-vessels. While there is a noetic element in the aroused consciousness, the result of apperceptive processes among the mental systems, of the passage of the nervous excitement across certain physiological barriers in an orderly normal manner, there is also the intense unmeaning element due to a similar process of passage across physiological barriers, but on a greater scale, and in a disorderly manner, and this is the painful or displeasing element.

In the same way, physical pain may be regarded as an intense disorderly consciousness accompanying the spread of powerful nervous impulses through large areas of the nervous system. The impulses are so violent that they break across the barriers that suffice to demarcate systems for currents of normal strength, and in so doing they arouse violent unco-ordinated motor re-actions, both visceral and somatic.

There may perhaps be distinguished two determinants of this disorderly form of consciousness: on the one hand, a disorderly, on the other, a too intense initial disturbance. In the case of painful mental activity we recognise the former

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determinant of the painful element, in the excitement of systems that cannot work harmoniously together towards the production of a co-ordinated efferent outflow, the presence of conflicting ideas and tendencies; and in the case of physical pain, we recognise it in the excitation of sensory end organs by unwonted stimuli, stimuli that lead to an unwonted set of afferent impulses, for whose reception there is no mental system prepared. Thus, any electric stimulation of the skin, being altogether unusual and unlike any other kind of excitation, is painful or disagreeable, even in its lowest grade of intensity. The other kind of determinant of pain, the too great intensity of the initial disturbance, is also capable of causing pain of both kinds. In the case of pain of mind (as it is commonly called) we have good evidence of this in the way that even pleasurable emotion may become painful through too great intensity. And physical pain seems to result from too violent stimulation of perhaps any afferent nerve. In both cases we may suppose that the nervous excitement is too great to be carried off by any co-ordinated system of nerve paths, that it breaks across physiological barriers on every hand spreading through unrelated mental systems in a disorderly manner, perhaps through every part of the nervous system, so provoking the characteristic display of violent purposeless motor re-actions, both visceral and somatic, and, when very intense, leading to the state of complete nervous exhaustion that we know as 'collapse'. It is significant that severe pain that persists usually sets up some rhythmically repeated motor re-action, such as the swaying of the body, the grinding of the teeth, the wringing of the hands, or the repeated utterance of some irrelevant phrase. The setting up of such a rhythmic re-action leads to a diminution or cessation of the pain; a tract is established and partially organised, and by it the energy of the nervous excitement is partially drawn off, so that the breaking through of physiological barriers no longer occurs on so great a scale.

If this be a true account of the nature of painful neural process, do we not see here a physiological basis for the spiritual benefits of pain, that pious elders so delight to dwell upon? The violent nervous impulses break across barriers that might never have been surmounted otherwise, and so make the first step towards the setting up of relations between mental systems that might have remained for ever unrelated if the individual had lived a happy, painless existence. 'Happiness is dulness,' as George Meredith has somewhere written.

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These remarks on the nature of the physiological correlate of pain lead naturally to the consideration of the nature of the action of anæsthetic drugs, such as alcohol, chloroform and ether. I will set down here an hypothesis as to the nature of their action which, while it seems highly probable, would, if it could be shown to be true, lend powerful support to my main thesis as to the physiological conditions of the occurrence of consciousness. All the facts known as to the action of these drugs seem to me to point to the conclusion that they tend to diminish and abolish functional continuity between the neurons, just as curari abolishes functional continuity between neuron and muscle fibre, and atropine that between neuron and gland cell.

In the first place, we know that the activity of the central nervous system is profoundly affected by the presence in the blood of such small proportions of these drugs as do not appreciably affect the conductivity of nerve fibres. And we know that the higher mental functions are abolished while the neurons, constituting the reflex arcs of the cord, are not appreciably affected. There are no grounds for believing that the chemical natures of the cells concerned in the higher and lower functions of the nervous system are essentially different.

But far more important is the fact that the functions of the parts of the nervous system seem to be abolished strictly in the inverse order of the degree of fixity of organisation of the nerve paths that subserve the functions. For, beginning at the bottom of the scale of functions, we know that the last functions to be abolished by these drugs are those of the respiratory reflex arcs, and it may fairly be assumed that those through which nervous impulses are passing in every moment of life, from birth onwards, are the most completely organised of all reflex paths. Earlier than these are abolished such pure reflexes as the corneal and those on which the tone of the skeletal muscles depends, and earlier still, such reflexes as lead to the quick withdrawal of a limb on sharp stimulation, and all such reflexes as are only of occasional occurrence, and approximate in type to instinctive actions. Pharmacologists describe the effects of these drugs on the nervous system in general terms, as the abolition of its functions in the order from above downwards, in a scale not very accurately defined. If we analyse the early stages of the effects of alcohol, we find that, just as in the case of the reflexes of the cord, the functions of the nerve paths of the cerebrum are abolished in the inverse order of their degree of fixity of organisation, the degree of intimacy of physiological continuity

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between the constituent neurons. Recent experimental work by Kraepelin has shown that alcohol, even in doses so small as to produce no subjective symptoms, diminishes intellectual power and accuracy. The first well-marked symptom is a diminution of self-consciousness. It is notorious that a man when slightly under the influence will boldly do and say things that in his normal state he could not bring himself to do or say, owing to self-consciousness and the rapid imagining of himself as he would appear in the eyes of others. At the same time, and as in part the same process, his sense of general responsibility diminishes. Now self-consciousness of this sort is one of the most intense and varied forms of consciousness. It depends upon the repeated interaction of mental systems subserving the ideation of various aspects of self with very numerous other systems, as they are excited. This interaction involves a very great amount of that physiological activity which we have found reason to regard as the immediate correlate of consciousness, namely, the establishment of new or relatively new nervous connexions. In such mental processes there is involved a greater proportion of unorganised, as distinct from organised nerve paths.[1]

In an early stage of drunkenness, the ruder, more primitive instinctive impulses, are apt to make themselves effective, because they are no longer controlled by the mass of partially organised mental systems that represent the social training and finer points of character of the individual. And in a further stage before consciousness is abolished, it is so much reduced that the person may repeatedly perform some such action as shaking hands, or the asking of some question, each time without remembering that he has gone through the same performance in the previous moment. Consciousness is, in fact, so low in intensity that on the morrow there may be no memory of even very extraordinary events that may have occurred during this period. During this stage all actions seem to be performed almost automatically, and the finer movements requiring accurate co-ordination and attention are no longer possible. In a slightly later stage consciousness seems to be completely absent, and even such instinctive actions as walking cannot be performed, owing to the inability to balance the trunk and co-ordinate movements; but the purely reflex element in walking, the rhyth-

[1] The excitement that so frequently accompanies the initial stages of the action of alcohol, is probably an entirely indirect effect, due to dilatation of the cerebral arterioles, and increased activity of the heart, together with the loss of sense of responsibility noticed above.

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mic movements of the legs, is still possible, for if supported on either side the patient may walk fairly well. This is the initial stage of coma, and it is important to notice that even in a more advanced stage of coma, long after the abolition of apperception, attention and consciousness, some at least of the cortical neurons are still functional, those, namely, that form parts of well-organised mental systems; for it is possible, even in this stage, by loudly asking the patient's name, to elicit an appropriate response, and, as I have already pointed out, there is every reason to believe that speech always involves the activity of cortical centres. It must then be admitted that the abolition of function of the parts of the nervous system by these drugs, is effected exactly in the inverse order of the degree of fixity of organisation, of functional continuity of the nerve paths concerned.

Having regard then to the present state of the histological evidence and to the facts of the localisation of the action of curari and atropine, mentioned above, it seems highly probable that fixity of functional continuity depends upon the intimacy of the junctions between processes of the neurons and that these drugs act chiefly upon the junctions tending to abolish their conductivity for the nervous impulse. This view of the action of the drugs would afford a very satisfactory explanation of their analgesic action. For the increased resistance of the junctions between neurons, to the passage of the nervous impulse, means a strengthening on every hand of the physiological barriers. Hence these drugs tend to prevent that disorderly forcing of the barriers that seems to be the physiological correlate of painful feeling, so diminishing or abolishing both the pain and that widespread disorderly motor innervation, both visceral and somatic, which accompanies pain.

The phenomena of fatigue seem to point to the same conclusion. It has not been found possible to induce fatigue experimentally in such neurons as are accessible to direct observation, and the neurons of the lower reflex centres seem capable of great and long-continued activity without showing symptoms of fatigue. The functions of the nervous system seem to be affected by fatigue in just the same order as by alcohol and chloroform, *i.e.*, the more automatic the function, the more definitely organised the nerve path, the less readily is it affected by fatigue. It seems then probable that the waste products of metabolism like those drugs, tend to abolish functional continuity between neurons. And here again we find support for this view in the analogy of nerve and muscle; for it has been experimentally shown

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that in excised tissues the junction between nerve and muscle is more readily affected by fatigue than either nerve or muscle.

This hypothesis finds further support in observations on the action of nicotine on the ganglia of the sympathetic nervous system. For it has been shown by Dr. J. N. Langley to be highly probable that nicotine abolishes the functional continuity between neuron and neuron in these ganglia, without markedly affecting the neurons themselves.

The action of these drugs then further tends to prove the correlation between consciousness and the passage of nervous impulses along new paths, *i.e.*, the establishment of new nervous connexions, for the possibility of the occurrence of both is diminished by them in an exactly parallel manner.

This argument remains good, though the fixity of continuity of nerve paths be not a function of the junctions of neurons, but depend upon some state of the cell bodies or their processes. Nervous impulses that are concerned in conscious processes pass through new or relatively new nervous paths, and in so doing improve their conductivity; and this process, the passage of the impulse along a new path improving its conductivity, is the immediate correlate of consciousness; and as by drugs and fatigue the process, be it called canalisation, organisation, "Bahnung," or the establishment of new functional connexions between neurons, is rendered impossible through increased resistance of the paths, so the possibility of the occurrence of consciousness is abolished.

## PART III.

### On the Relation of Consciousness to Other Existents.

In the preceding section I have but brought together data generally accepted by both psychologists and neurologists and have explicitly stated the logical inference from them that is more or less vaguely recognised by several writers. It is perhaps allowable to attempt now, in the light of this conclusion, to define more accurately the relation of consciousness to other existents and form a working hypothesis as to the part played by it in mental process.

The ground must first be cleared by a protest against a certain form of materialism that finds expression not only in such writings as those of Dr. C. Mercier, but also in those of some of the psychologists and philosophers who protest most loudly against materialism.

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Our earliest and most frequently repeated sense impressions are derived from solid objects, by touch, and the sense of weight and resistance when we exert ourselves to move them; by sight through the light reflected from them; and the affections of our temperature sense are also generally referred to the presence of solid objects. Hence the natural man is inevitably a materialist in the sense that to him matter is the most real thing.

The first result of philosophic thought seems to have been the division of the universe into matter and spirit. Man's soul or spirit was regarded as in every way the antithesis of matter, and it was usual to applaud the one and heap opprobrious epithets upon the other. The former process was a useful step, the latter was a quite unnecessary diversion. When the mediate nature of our knowledge of matter became more fully recognised, matter was regarded as less offensive because less real. Then came a time when men busied themselves with a third conception—that of energy, and matter might have been relegated then to its proper place, but that physicists had come to look on matter in motion as the type of all energy. They committed themselves to the statement that action at a distance is impossible, a dictum that now seems so absurd, and began the attempt to formulate mechanical hypotheses for the description of all manifestations of energy. This attempt was attended with so considerable success in the case of certain forms of energy, notably light and heat, that it began to be believed that the hypotheses represented truths and that all forms of energy would ultimately be shown to be but forms of the motion of matter. This attitude of the physicists lent an immense stimulus to the natural materialism of all men, the metaphysicians and psychologists not excepted, with the result that the division between materialists and spiritualists became more acute than ever before.

It is by those who have least freed themselves from our primitive materialism and who have accepted most blindly the mechanical hypotheses of physicists, that the vastness and mysterious nature of the chasm, as they call it, between consciousness and the motion of molecules is most loudly insisted upon. We have already seen how the doctrine of the simple concomitance of consciousness has been set up from such reasonings. And the influence of this materialism is manifested very widely by psychologists of very different types. I have noticed already Tyndall's dictum that 'we have no organ that can bridge the gap'. Wundt writes: 'We can conceive how one motion may be transformed into

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another, perhaps also how one sensation or feeling is transformed into a second. But no system of cosmic mechanics can make plain to us how a motion can pass over into a sensation or feeling.'[1] This sentence illustrates very fully the sort of assumption that I protest against, the assumption, namely, that we understand how one motion may be transformed into another in some fuller sense than that we have frequently observed this kind of sequence. A similar assumption seems to underlie the following sentence from an article by Bradley:[2] 'Between a process in the brain and a consciousness of energy there is really a gulf which is not to be filled up. You may know from experience that they are bound together, but, given the first, you could never have got to the second, and they remain in the end quite heterogeneous.' For it is implied here that in the case of other processes bound together you may know without experience that they are so bound together and may foretell the one on the occurrence of the other without previous experience of their relation. Similar statements are made by very many writers, and it is needless to multiply instances. What I wish to insist upon is that there is a certain crudity about all this. In insisting on the vastness of the gulf between consciousness and every other thing, writers seem to forget that the gap between all forms of manifestation of energy is really impassable by our minds; that when we profess to understand something of them, of their relations to one another, of their mutual inter-convertibility, all that we mean is that we have observed the conversions, so that we are familiar with them, we have measured with more or less accuracy the equivalent quantities of the different forms, and in some cases we have formulated mechanical hypotheses concerning them. Having so defined and described certain features and relations, we are apt to forget that our knowledge of and about these things is purely inferential, that our pictures of them and their interactions are but convenient mental symbols, that their nature is utterly mysterious, and that the chasm between every two kinds of energy is completely impassable by our minds. As Lotze writes:[3] 'Wir können leicht zeigen—dass in der Wechselwirkung zwischen Leib und Seele kein grösseres Räthsel liegt, als in irgend einem anderen Beispiele der Causalität, dass endlich nur eine falsche Einbildung bei diesen mehr zu wissen, die Verwunderung darüber erzeugt hat, dass wir hier nichts wissen'. And again Lotze writes,[4] 'alle Wechsel-wirkung zwischen glei-

[1] *Human and Animal Psychology*, p. 6.
[2] MIND, xi., p. 321.
[3] *Medicinische Psychologie*, p. 71.
[4] *Ibid.*

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chartigen Gliedern stattfindet,' since, as he puts it, soul and matter are alike the shadows of the realities underlying them and between which the interaction takes place. But Lotze wrote under the influence of a flourishing materialism, and from the modern standpoint we must modify this dictum and say that consciousness and all manifestations of energy are alike but shadows of the realities underlying them, that hence 'alle Wechsel-wirkung zwischen gleichartigen Gliedern stattfindet'. For we can no longer divide the universe into soul and matter. We now realise that it is not and probably never will be possible to describe all forms of energy in terms of the motion of matter, and that in dealing even with light and heat the mechanical hypotheses have not been completely successful.

Further it is now recognised that the forms of energy that affect our sense organs are but a small selection, as it were, of those of whose existence we have indirect evidence, while, as Prof. Ostwald[1] writes, 'Matter is nothing but a group of various forms of energy co-ordinated in space, and all that we try to say of matter is really said of these energies'; and as Prof. Mach[2] has insisted, when we treat of matter mechanically we are regarding it from only one of many possible aspects.

In considering the relation of consciousness to neural process it is our business as psychologists to treat of consciousness objectively, or as Shadworth Hodgson[3] says, as 'an existent' in 'its dependent aspect of genesis and determination by nerve process' as distinct from 'its other aspect or character of a Knowing,' which must be left to be dealt with by metaphysicians. For 'It is this existent aspect of consciousness that is the object of psychology'. 'Psychology, therefore, has not to account for there being such a nature as consciousness, for this is the primary datum of all particular knowledge whatever, but, taking this nature as already known, to account for the genesis and subsequent history of it in individual living beings. And in order to do this, it is obvious that psychology must also treat the nervous system and process as realities or real existents, no less than consciousness.'

We have seen in the preceding part of this essay that consciousness seems to occur constantly in conjunction with the process of establishment of new nerve paths, of new functional connexions between neurons. If we reject the doctrine of the simple concomitance of consciousness, and regard it as playing some part, as performing some function

[1] *Science Progress*, Feb., 1896, p. 432.
[2] *Science of Mechanics*.
[3] *Brain*, vol. xiv., p. 8.



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in mental life, as we have seen imperative reasons for doing, we must suspect some causal relation between these existents, we must believe that consciousness is one of the conditions of the establishment of the new connexions.

In all probability, this establishment of connexions among neurons, connexions which seem to be the physiological basis of retentiveness, consists in a redetermination of the grouping of atoms and molecules, so that they shall swing in new positions of equilibrium; the immanent energy of these systems then determines the course of transformation of the transitive energy of mental activity, just as the immanent energy of stable equilibrium of the molecules of a seed must be supposed to determine in part the course of the transitive energies of the growing plant that springs from it. But however this may be, if we ascribe to consciousness a causal relation with, if we attribute to it a part in, the determination of nervous connexions, then we must admit that in its aspect of an existent, the consciousness of another man has to each of us a relation similar to that of those forms of energy, such as magnetism, the ultra-violet rays of the solar spectrum, the Röntgen rays, and many others, which do not directly affect our sense organs but are only known to us indirectly by their interaction with those forms of energy that do directly affect us. The only difference seems to be that our means of appreciating its occurrence and estimating its intensity are still more indirect, more uncertain and more inexact.

And unless we assume that the mind either destroys or creates energy, we must believe that consciousness is subject to the law of the transformation and conservation of energy, we must in fact believe that it is a form of energy, and that it has its heat equivalent that may some day be determined with more or less accuracy. Have we not an indication of this in the fact that neural activity seems to produce fatigue rapidly in proportion to the intensity of the consciousness that accompanies it?

The legitimacy of this way of regarding this aspect of consciousness may be illustrated by putting a hypothetical case. There are good observers who believe that telepathy is a fact, *i.e.*, that the consciousness furnished by the brain of one individual, A, may, and sometimes does, affect the consciousness of another individual, B, without the intervention of the bodily organs of A. There is no ground for denying the possibility of this occurrence, and the only ground for believing it to be improbable is that it has not yet been satisfactorily proved to occur. Let us suppose, then, that some-

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time in the future it should be proved to occur, and let us further imagine that the power of appreciating the consciousness of others in this way had become highly developed. Then if our appreciation were by means of some special sense organ, the relations of the consciousness of one individual to another would be strictly comparable, not merely, as at present, to the relation to us of the forms of energy indirectly appreciated, but to that of those forms that directly affect us.

While then psychology leaves consciousness in its aspect of a Knowing to metaphysic, it may assume as a useful working hypothesis that in its aspect of an Existent it is one of the forms of the manifestation of energy, that just as matter is but 'a group of various forms of energy co-ordinated in space,' so mind is a still more complex group of various forms of energy of which consciousness is one. We shall then regard mental activity, not as a mixed chain of neural and psychical events, but as a flowing network of cause and effect, consciousness forming a part of the strands, a part that is of very different importance in different kinds of mental activity. By adopting this hypothesis and thus bringing the relation of consciousness to other existents into line with the relations among the latter, we in no way diminish the mystery of the relation, we do but fill in a little more of the detail of the whole mystery of causality, as by all other advances in our point of view and knowledge of relations.

If we reject the simple concomitance view of consciousness and yet accept for mental process the principle of determinism, as is done by most psychologists, I cannot see that any other view of the function of consciousness than that here advocated can be held without involving irresolvable contradictions.

It would be idle to speculate further as to the exact part played by consciousness in establishing connexions among neurons, for we do not yet know in what those connexions consist, whether in some increase of the conductivity of nerve fibrils, the bringing of separate fibrils into continuity by the outputting of amœboid processes or otherwise, the modification of the substance intervening between neighbouring fibrils, perhaps by an orientation of polar molecules, or in some other physiological change.

The deductions from this hypothesis may be summed up shortly by saying that consciousness is the force that makes mind, that makes of neural processes experiences, that consolidates new reactions and thoughts into habitual mental processes, and habits into instincts and reflex actions. We act so or so, not because we are conscious now, but because we have been conscious in the past.

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## V.—THE DIALECTICAL METHOD. (III.)

(*Conclusion.*)

By Prof. E. B. McGilvary.

II. Let us now address ourselves to the contention that there is another kind of change in the method of the dialectic, a change from dependence upon contradiction into absolute indifference to contradiction. Mr. McTaggart says that the difference is greatest between the method employed at the very beginning of the process and the method employed at its end. In the categories of Being, neither the thesis nor the antithesis "is in any respect more advanced than the other, and neither of them can be said to be more closely connected than the other with the synthesis, in which both of them alike find their explanation and reconciliation. But when we come to Essence the matter is changed. Here the transition from thesis to antithesis is still indeed from positive to negative, but it is more than merely this. The antithesis is not merely complementary to the thesis, but is a correction of it. It is consequently more concrete and true than the thesis, and represents a real advance. And the transition to the synthesis is not now made so much from the comparison of the other two terms as from the antithesis alone. For the antithesis does not now merely oppose a contrary defect to the original defect of the thesis. It corrects, to some degree, that original mistake, and therefore has —to use the Hegelian phraseology—'the truth' of the thesis more or less within itself. As the action of the synthesis is to reconcile the thesis and the antithesis it can only be deduced from the comparison of the two. But if the antithesis has—as it has in Essence—the thesis as part of its own significance, it will present the whole of the data which the synthesis requires, and it will not be necessary to recur to the thesis, before the step to the synthesis is taken.

"But although the reconciliation can be inferred from the second term, apart from the first, a reconciliation is still necessary. For, while the antithesis is an advance upon the thesis, it is also opposed to it. It is not simply a completion

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of it, but also a denial, though a denial which is already an approximation to union. This element of opposition and negation tends to disappear in the categories of the Notion. As these approach the end of the whole process, the steps are indeed discriminated from one another, but they can scarcely be said to be in opposition. For we have now arrived at a consciousness more or less explicit that in each category all that have gone before are summed up, and all that are to come after are contained implicitly. 'The movement of the Notion is after all to be looked on only as a kind of play. The other which it sets up is in reality not another.' And, as a consequence, the third term merely completes the second without correcting one-sidedness in it, in the same way as the second term merely expands and completes the first. As this type is realised, in fact, the distinctions of the three terms gradually lose their meaning. There is no longer an opposition produced between two terms and mediated by a third. Each term is a direct advance on the other before it. The object of the process is not now to make the one-sided complete, but the implicit explicit. For we have reached a stage when each side carries in it already more or less consciousness of that unity of the whole which is the synthesis, and requires development rather than refutation."[1]

A few pages farther on, we read: "We may draw several important conclusions with regard to the general nature of the dialectic, from the manner in which the form changes as it advances towards completion. The first of these is one which we may fairly attribute to Hegel himself, since it is evident from the way in which he deals with the categories, although it is not explicitly noticed by him. This is the subordinate place held by negation in the whole process. We have already observed that the importance of the negation in the dialectic is by no means primary. In the first place Hegel's Logic is very far from resting, as is supposed by some critics, on the violation of the law of contradiction. It rather rests on the impossibility of violating that law, and on the necessity of finding, for every contradiction, a reconciliation in which it vanishes. And not only is the idea of negation destined always to vanish in the synthesis, but even its temporary introduction is an accident, though an inevitable accident. . . . But this can now be carried still further. Not only is the presence of negation in the dialectic a mere accident, though a necessary one, of the gradual

[1] *Op. cit.*, pp. 124, 125.

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completion of the idea. We are now led to consider it as an accident which is necessary indeed in the lower stages of the dialectic, but which is gradually eliminated in proportion as we proceed further."[1]

I have quoted thus largely in order that the issue may be clearly defined. My aim is not so much to controvert the expositor, but to expound his author and mine. But here, as in so many other instances, exposition is most effectively accomplished by a refutation of a counter-exposition. As every affirmation is also a negation, it is often well that what one denies should be brought clearly before consciousness, in order that what one affirms may be the more significant. As I understand Hegel, he affirms exactly what his commentator denies; and to understand the affirmation, it is well to understand the denial also.

It is my purpose to prove that in respect of the relation in opposition between the thesis and the antithesis, and in respect of the dialectical efficiency of the negative, there is really no change in Hegel's Logic from the very first triad to the very last. In order to do this, I shall attack the problem of the method of the initial triad, believing that a complete exhibition of the method there employed will be in itself a complete refutation of Mr. McTaggart's position.

As we enter upon this problem, we must recall what has been said about the double character of some of the categories, and about the so-called reconciliation of contradictories.[2] The true view of the movement, even in the categories of Being, is that the true dialectical negative of any thesis is not the abstract antithesis of that thesis, but it is the so-called synthesis of that thesis with the abstract antithesis; so that, if we are going to count steps, we may say that in one very important sense the dialectical movement is not triadic,[3] although, of course, if we consider the two aspects of the negative as two distinct steps in the process; that is, if we consider as one step the viewing of the negative as abstractly negative and as another step the viewing of it as concretely positive, we do have a triadic movement. But this whole matter of counting steps is a senseless procedure, an external reflexion; and the witticisms based upon it only show the shallowness of the views of the wits.

[1] *Op. cit.*, p. 184. [2] See January number of MIND, pp. 57-60.

[3] See III., 333, 834 (843-344), where Hegel shows that the movement may be considered tetradic or dyadic as well as triadic; but all such enumeration is "superficial and external".

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Hegel's own testimony on this point is decisive. "It" (*i.e.*, the negation of any concept) "is a new concept, but one higher and richer than the preceding; for it has become richer by the negation or opposite of that concept. It thus contains its predecessor and more too, and is the unity of that predecessor and its opposite."[1] This is what he says in the Introduction to the *Greater Logic*. He says the same thing at the very end of this work,[2] where, having traversed the long road that leads from pure Being to the Absolute Idea, he reviews the course that has been accomplished, and pays particular attention to the method that has achieved the result. There he devotes some eight or ten pages to the full treatment of the relation between thesis, antithesis, and synthesis, or, as he there calls them, "the first," "the second," and "the third"; and he looks at this relation from many points of view. I cannot quote the whole passage, although any one who wishes to understand the method thoroughly should make himself perfectly familiar with what is there said. All I can do here is to quote in part: "The second" (*i.e.*, the antithesis), "which has thus arisen, is accordingly the negative of the first; and, to take anticipatory account of what follows, it is the first negative. The immediate" (*i.e.*, the thesis) "has, on this negative side, perished in its other; but that other is essentially not the empty negative, Naught, which is taken for the usual result of dialectic; but it is the other of the first, the negative of the immediate.[3] Thus it is determined as the *mediate*—in short, contains within itself the determination of the first" (*i.e.*, of the thesis). "The first is hence essentially *preserved* and *kept* in its other. To keep fast hold of the positive in its own negative, in the content of the presupposition, in the result—this is the most important thing in the knowledge that belongs to the stage of reason. . . . What is, accordingly, now present is the mediated, which at first, or when likewise taken immediately, is also a simple category; for since the first has perished in it, only the second is present. Now, because the first is also contained in the second, and the second is the truth of the first, this unity can be expressed as a proposition, in which the immediate is put as subject, and the mediate as its predicate. . . . The second category, the negative or mediate, is, further, likewise the *mediating* category. At first it can be taken as a

[1] I., 39 (41). [2] III., 328 (338), *seq.*

[3] The thought would be better expressed by the use of hyphens: "the other-of-the-first, the negative-of-the-immediate," and below, "the negative-of-the-positive".

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simple category; but viewed as it is in its truth, it is a relation or an essential relation. For it is, indeed, the negative, but the negative of the positive, and includes the positive within itself. It is thus the other, not of something to which it is indifferent,—for then it would not be an other, nor would it be a relation or an essential relation,—but it is the other *by virtue of itself* (*an sich*), the *other-of-another*. Therefore it includes *its own* other in itself, and is, accordingly, as this contradiction, *the explicitly posited dialectic of its own self*. . . . The second, as contrasted with the first, is itself the determinate, *i.e.*, is distinction or essential relation. The dialectical moment in it consists, hence, in positing the unity that is contained in it. If, therefore, the negative, the determinate, *e.g.*, essential relation and judgment and all the categories that come under the second moment" (*i.e.*, appear as antithesis), "do not themselves, taken in their independence, already appear as contradiction and as dialectical, it is due to a mere defect of the thinking faculty, which does not bring its thoughts together. For the materials," adequate for the recognition of contradiction, "the opposite categories *in one relation*, are already explicitly posited, and present for thought. Formal thought, however, makes identity a law, and lets the contradictory content that it has before it be degraded into the sphere of presentative consciousness, into space and time; and there the contradictory is maintained in the reciprocal *externality* of coexistence or succession, and thus does not appear to consciousness to be in mutual contact. In its dealing with this content, formal thought lays down the definite principle that contradiction is not thinkable. In fact, however, the thinking of contradiction is the essential factor in conception. Even formal thought actually thinks contradiction; only, while thinking it, it refuses to recognise it, turns from it, and in that just-quoted principle betakes itself to abstract negation.

"The negativity just considered constitutes the critical point in the movement of the concept. It is the simple point of negative self-reference, the innermost fountain of all activity, of vital and spiritual self-movement, the dialectical soul that everything true has in it, and by which alone it is a truth."[1]

To bring out all the wealth of meaning that lies stored up in these cryptic utterances would take more pages than are at my disposal. But it requires no great space, and certainly no great penetration, to repeat some things that are

[1] III., 330-332 (340-342).

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said by Hegel in the passage I have partly cited. The central thought of it all is this: *When we have reached any antithesis, we do not need to wait for a synthesis in order to reconcile that antithesis with its thesis; but the antithesis itself, viewed as speculative logic views it and not as abstract, make-believe, but impossible thought would view it, is already a synthesis of the thesis with the opposite of the thesis.*

In other words, the antithesis has two significations; or rather it may be regarded from two points of view. Looked at from one point of view, it is merely an abstract opposite of its thesis, having no *intimate* relation to it, living as a quarrelsome neighbour *beside* it, *separated* from it by an insurmountable wall of partition, through which only its objurgations can find passage. The law of identity keeps it bound down fast on its own side of the fence; the law of contradiction forbids its trespassing on its neighbour's premises; while the law of the excluded middle says that there is no fence between them. And thus this point of view opens before us a scene that is—illusion; "vanity of vanities, all is vanity". So we must betake ourselves to the other point of view, and see whether that will not display before us a substantive reality.

From this second point of view, the antithesis is no longer a virago living next door to the thesis, but is the indispensable, all-absorbing, husband-sublating wife, "the joy of its bosom, the plague of its life". The non-existent wall of separation no longer separates; it unites. The husband is seen to be only a member of a family, and the wife is the family.

But illustrations and all like aids to comprehension are only external. The matter must be understood in its native logical truth; and it seems to me that this truth is capable of being understood, and even of being expressed in language that is no more figurative than all languages must be. Let us try.

The negative of anything, as merely presentatively before consciousness (*als vorgestellt*), may appear to that consciousness with all suggestion of its intrinsic essential relation to its positive suppressed; only, one is tempted in such a case to appropriate Prof. James' happy word "sciousness," as a more faithful designation of such a mythical consciousness. When, for instance, I present to myself the image-idea of Naught, I may seem to have a mere vacuum as the only object before my consciousness, a vacuum which explicitly excludes the content of Being, and therefore has no Being in it. But this is a mere seeming. Because

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if it is a merely presented Naught and not a thought Naught, not a conceived Naught, then it is not Naught *to me*, and therefore the presentation of it to me is not consummated. The desired result is achieved only when I *think* what is proffered, as being Naught; and to think it as Naught is to think it as negative of Being, as Non-Being; that is, Being must be *present as rejected* within the thought that thinks Naught. I must think what-it-is-not, and think Naught as *not* what-it-is-not. Naught is, then, the synthesis, in thought, of Being and rejection or negation, a synthesis of elements which, if they could exist out of such synthesis, would be pure Being and pure denial or abstract pure Naught. It takes, thus, only a little psychological reflexion to see that the thought of the negative is, as a matter of fact, always a thought that includes its positive as a moment within it; and it takes but a little logical reflexion to see that it must be so. The thought of the negative is, therefore, not a dead self-identity, but is a *synthetic unity, with the positive that it negates as a distinction partly constitutive of it;* whereas the thought of the so-called positive is never achievable except as merely a part-thought within the organic whole of a negative thought. But such a negative thought is not merely negative; in denying the positive, it not only posits itself but it also posits as a factor within itself the positive which it itself denies.

Now, even when "common-sense" rises to the height from which it can see that the positive is only a part-thought, it makes the mistake of supposing that the negative is only another part-thought, along with which the positive part-thought makes a whole by external juxtaposition. It is perhaps Hegel's greatest merit to have seen the insufficiency and utter inadequacy of any such supposition, and to have made this his insight the instrument for the reconstruction of the science of logic, for the rescue of dialectic from the fate of being a mere capricious iconoclast, and for making it the constructive principle of philosophy, seeing that it was the constructive and not the destructive principle of thought. He saw that what is only positive does not exist, except as a merely apprehended but not yet comprehended member in a concrete whole; he saw that what is only negative does not exist except as a whole not recognised as a whole; and he saw that what in truth really exists, and what alone exists, is the negative whole of thought, which, because negative, has distinctions; which, because a whole, has the distinctions within it and not without; and which, because not negating something outside of it

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or an independent other, is truly positive. As already shown, this positive-negative whole, has, as its organic constitutive factors, the positive and negation. The factors, regarded in themselves, in abstraction from the whole in which alone they have being, are pure, *i.e.*, abstract Being and abstract negativity or pure Naught. But so regarded, they cannot be *thought*, and what cannot be thought cannot be logical; and so long as they are not thought, they have no dialectical character belonging to them. They get dialectical character only when they are taken up into thought; that is, when they cease to be mere unsubstantial ghosts, mere make-believes which are not, and become real thoughts that are. The dialectical movement is the change from what they are not and never were and never could be, but were supposed to be, to what they really are. Dialectic is the nullifying of a nullity that parades itself in the guise of an entity; but this nullity is not cancelled out of consideration. The abstractions that are shown by dialectic to be nonentities are shown to be such, only in being shown to be real organic factors in the one thing that can with any propriety be called real, that is, in negative-positive thought, or self-consciousness.

Now it is for the reason that the dialectical negative is thus negative because what it negates is *within* it,—it is for this reason that Hegel calls it "the other by virtue of itself, the other-of-another" ("das Andere an sich selbst, das Andere eines Andern"). It does not owe its otherness to the mere accident of being arbitrarily and externally contrasted with something to which it is indifferent, but it is an other because it has *in itself, as its own moment*, its other, by virtue of which it has the characteristic of otherness. It is itself the other-of-another, not what may be regarded as an other —of something independent.

Having thus shown what is the true logical view of the relation between the antithesis and the thesis, let us see whether this relation does not hold in the very first triad. As has already been shown, the first triad is not abstract Being, abstract Naught, *and* Becoming. But it is Being which has its reality *only in its negation;* which negation, *being concrete*, is the synthetic unity of Being and its opposite, Naught; in other words, that negation is Becoming. The thought or category, Becoming, is just the same thought as Non-Being when Non-Being is *thought*, and is not merely an imaged abstraction. As Hegel says, "in Non-Being the relation to Being is contained; it is both Being and the negation of Being expressed in one word; Naught, as it

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is in Becoming".[1] Since it is thus a dialectical negative, which is richer than its thesis, including, as it does, both its thesis and the opposite of that thesis, it is "just as positive as it is negative"; and when thought of as positive we call it Becoming.

It would not be difficult to show that in any other so-called triad in the categories of Being, the antithesis, when thought, that is, when dialectical and not abstract, is already the synthesis. Take for instance the Finite, the false Infinite, and the true Infinite. The false Infinite is not really the antithesis in thought of the Finite; it is only by an unrealisable abstraction that the false Infinite has any being. To negate the Finite in thought one must think it as a moment in the Infinite; the Infinite cannot exclude it; hence the Infinite cannot be, in real thought, a false Infinite. And, again, the Finite cannot be thought except as a moment in the thought of the Infinite. Of course a finite thing may be discovered to consciousness by presentation without the presentation of the Infinite, for the Infinite cannot be presented at all. But this finite thing can be thought as finite, only as a distinction within a thought that thinks what the Finite is not, *viz.*, the Infinite.

But this relation between thesis and synthetic antithesis in these early categories is exactly the relation that exists in the categories of Conception (*Begriff*). Let us take Concept, Judgment, Syllogism, as example of the later triads. A negation of what usually passes for a concept is a judgment; that is, you cannot in thought negate such a concept without *ipso facto* judging. Nor can you ever judge without *ipso facto* negating such a concept. That is to say, unless the so-called subject and the so-called predicate are kept distinct, kept in the negative reciprocity of distinction, there is no judgment. But if this distinction is a *bare* negation, a mutual *exclusion*, there is no judgment either. The so-called subject and the so-called predicate are not in external juxtaposition. The true logical subject[2]—not the so-called logical subject—includes the predicate while denying it, that is, while distinguishing it from itself. As Mr. Bosanquet says, "Subject and Predicate in the actual judgment are really distinct, as a real identity from or in its differences". "You cannot affirm *without introducing a distinction or reference* into the content of the affirmation;

[1] I., 74 (79).

[2] The true logical subject in "synthetic judgments" is the all-inclusive unity of the distinctions named in the subject and predicate, and in "analytic judgments" it is the unity analysed.

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and yet such distinction or reference, *being part of what is affirmed, and not a relation between what is affirmed and something else*, cannot, it would seem, be the essence of the affirmation."[1] The subject, the all-inclusive unity of distinctions, is the *negative* unity of these distinctions, not their dead identity. But because that negative is thus a mediating unity, in which the so-called subject and the so-called predicate of the "synthetic judgment" are brought together, it is the syllogism. To recapitulate, the negative of the concept, as explained above, is judgment; this negative of the concept regarded as positive, because not negative of something external to it, is the syllogism. Now the reader who has followed this very brief exhibition of the dialectic of Concept, Judgment, and Syllogism, will see that the method is exactly the same as that employed in the triad, Being, Naught, and Becoming.

We can now see what becomes of Mr. McTaggart's contention that the negative is only a necessary accident in the dialectical process, tending to disappear in the higher categories. We may traverse this contention in two ways. We may say truly that negation, far from being a necessary accident in the dialectical process, never appears in it—*meaning here by negation what Mr. McTaggart means by it;* for the dialectical process is never "from one extreme to another extreme equally one-sided".[2] And we may also say that negation is not an accident tending to disappear, because it is the very life of the process, and appears in the fulness of its power only when it has brought all things under its feet, as the All-in-All of the Absolute Idea.

It happens that abstract understanding puts over against the thesis some other would-be category, now in the relation of contradictory opposition, now of contrary opposition, now of subcontrary opposition; and what disappears in the higher categories is the particular definite way the abstract understanding has of relating a lower abstract antithesis with its thesis; and what takes its place is some other particular way. But what is permanent through all such changes on the part of abstract understanding, is the one way that dialectic has of advancing by negation from a lower category to the higher, in which alone the lower has being. "That by which the Concept accomplishes its self-advancement is the aforesaid negative that it has in it. This constitutes the truly dialectical feature."[3]

[1] Bosanquet's *Logic*, I., 82. The italics are mine, to emphasise what is here pertinent.

[2] *Op. cit.*, p. 134.

[3] I., 40 (43).

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What we have already said will throw light upon another vexed question that concerns the nature of the dialectic. Is its method analytic or synthetic? Is the first category a box within which the others are all contained, or is it a grain of sand to which the others are added to make a heap? If this second form of putting the question fairly represents what is meant by the first form, the answer must be that it is neither analytic nor synthetic; for such analysis and synthesis are nothing but mere partition and aggregation. But if by analysis is meant the bringing to explicit consciousness (*Setzung*) of what a category is in itself (*an sich*), and if by synthesis is meant the enrichment of a category by another which is not an externally indifferent other, then the answer must be that the process is both analytic and synthetic. For in an organism, analysis and synthesis are not inverse processes, but are the same process. And by this I mean something different from what Mr. Bradley and Mr. Bosanquet mean when they say that there is no analysis without synthesis, and no synthesis without analysis. For what they mean is that a thought-whole does not crumble to pieces under the operation of analysis, but that the act of analysis can be performed and the result of analysis can be recognised as an analysis, only when in the same act these analytic elements are ideally held together in the whole, from the ideal disintegration of which they have arisen; and that an intellectual synthesis can take place and be recognised as synthesis, only when the synthetic result is not a homogeneous whole, but the distinctions unified are still kept distinct. All this is true *even in the ideal partition and aggregation of spaced objects conceived merely as mutually external.* Now what I mean by the co-operation, or rather by the identity, of analysis and synthesis is something very different from this. One cannot analyse the conception one has of any member in an organic whole without finding in that conception the conception of the other members and of the whole within which they are members; and this gives the analytic character to the operation. But at the same time these other members are truly *others*, and the whole is more than the part; and this gives the synthetic character to the operation.

Let us hear what the great dialectician himself says on this subject: "This is what Plato demanded of knowledge, that it should consider things in themselves, in their absoluteness; that is, partly, in their universality; but also, partly, that one should not stray away from them, and should comprehend them, not in their environments, instances, and

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external contrasts, but that one should keep them alone before one's thoughts and bring to consciousness what is immanent in them. The method of absolute knowledge is in so far *analytic*. The fact that this method finds the further determination of its initial universal entirely in this universal alone, is the absolute objectivity of the conception,—and the method is the assurance of this objectivity. It is, however, just as much *synthetic*, since its object, determined in its immediacy as simple universal, shows itself as an *other*, by the very determinateness which it has in its immediacy and universality. This relation to a different something—a relation which constitutes the object in itself—is, however, not the same thing as is meant by synthesis in finite knowledge. Already by its quite as analytic character of being a relation *within a conception*, it is thoroughly distinguished from this latter synthetic procedure. This moment of *original self-diremption* (*des Urtheils*)—a moment as synthetic as it is analytic—by which this initial universal obtains out of itself its determination of being its own other, is to be called the dialectical moment."[1]

Let me give an illustration of Hegel's meaning by using what, at first, seems not to admit of serving as such. What is the relation of a plane triangle to the space outside of it? Of course, if merely looked at, the triangle is seen to be outside of the space that is outside of it. Considered as mutually external, neither can by analysis be derived from the other. But instead of merely looking at the triangle, *think it*, that is, bring it under conception, and proceed to examine logically the concept you have of it. Logically, the concept of it is the concept of a plane-figure-bounded-by-three-straight-lines. That is to say, we find as an element held logically within the organic unity of the concept "triangle," the concept "line". Now examine this concept "line"—again avoid merely looking at it in a passive gaze—and you will find that it is the concept of limit-between-two-surfaces. That is, the concept "surface" is an element held logically within the organic unity of the concept "line". Again, examining this concept "surface," you will find that it is the concept of limit-between-two-solids; so that, here again, we find that the concept "solid" is included as an element logically within the concept "surface". Thus we find that the tridimensional space, circumjacent to a plane triangle, is an *analytic element* in the very concept of that triangle. But it is no less true that this tridimensional space is the *inclusive*

[1] III., 326 (335-336).

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concept, in which the concept of the triangle in its turn is an element; that is, this tridimensonial space, when thought, is *synthetically* related to the triangle, having the triangle as an analytic element within it. We do not, and cannot, think tridimensional space as an element in a quadridimensional space. We think it as a moment in the concept of one or more of its dimensions, and think it as the total concept including its dimensions as its moments. The analysis of the concept of a dimension gives tridimensional space as a distinction within it, but this distinction is at the same time the synthesis of this dimension with the other dimensions. But such synthesis and such analysis are not juxtaposition of mutually external pieces and partition into mutually external segments. The analysis is the recognition of the distinctions as moments within an organic unity; the synthesis is the recognition of each distinction as itself *the whole within which all other distinctions, themselves wholes including it, are included.* No distinction is an ultimate distinction incapable of analysis. Think it as an ultimate distinction, and, behold, in that very thought it becomes a synthetic whole subsuming under it that whole in which you try to consider it as an ultimate element. *In conception, then, subsumption is reciprocal.* The thought-movement,—that is, the dialectic,—by which we go from a distinction within a unity up to that unity, is a movement outwards, which at the same time is not a movement outwards, but a permanent abiding within the point of departure. "Dialectic is the *movement outwards, that remains within*, a movement in which the one-sidedness and limitation of the categories of the understanding shows itself to be what in reality it is, namely, its negation." [1] An analysis of a concept as it is in itself, which results in a synthesis of it with a true other; a synthesis of a concept with its other, which is not an absolutely independent other, but is an other within that concept—this is the dialectical process, this is the dialectical method, which, beginning with a seemingly poor, ultimate, unanalysable concept, reaches the richest concept "without introducing any element from without". [2] "Every new step of the *process outward out of self*, that is, of *further determination*, is also a *process within self.*" [3]

[1] *Encyclopædia*, § 81, Werke, vi., 152. Prof. Wallace's translation, "indwelling tendency outwards," of Hegel's "das immanente Ausgehen" not only robs the sentence of its strong paradoxical flavour, but fails to express the vital thought that Hegel expressed in the original.

[2] I., 39 (41). [3] III., 839 (849).

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In closing this examination of Hegel's dialectical method, there are two remarks I wish to make. One of them is that the relation of Hegel's negative to the negative of formal logic is often misstated. It is not true that formal logic deals with a negative that is absolute, with a contradiction that cannot be gainsaid; while speculative logic deals with a negative that is relative, with a contradiction that has no backbone and can be bullied into retractation. The truth is, that the dialectical negative is the only negative that can be thought, and it is an absolute negative. We often make ourselves believe that denial can be a relegation of the denied into another universe than our own, or at least that it can be the expression of the logical non-existence for us of what is denied. And we more often make ourselves believe that contradictions cannot but logically annihilate each other. It is one of Hegel's good offices to philosophy to have pointed out that a negative thought not only *can*, but *must*, be absolute, while no negation can be "bare," and that contradictions are not only thinkable, but that where there is thought, there is contradiction—however, a contradiction *transcended*. The contradictories of formal logic are abstractions, good enough in their own place; but the law of contradiction is not a law of *active* thought; it is merely the law that expresses the relation that exists between two organic elements in thought, when we insist on not regarding their organic character. It is the law that controls the external relation of objects of presentative consciousness, when thought as presented; it is not a law that controls the relation of objects of intellectual consciousness, when thought as intellectual and timeless. In so far as any man thinks, and not merely passively "takes it in," he has transcended the law of contradiction and is under the law of dialectic.

The second remark is, that it follows as a consequence of the *analytic* character of dialectical synthesis, that there is no *external necessity* in the world of thought, in the eternal world that lies behind the world of time and space and is the ground of that temporal and spatial order. In the logical universe, every distinction is itself the whole by virtue of the fact that the other distinctions are logically within it. Every distinction is a monad, a whole logical universe within itself, entirely self-active, knowing no restraint or compulsion from an independent, external source; for everything that is other than it, is an other *in* and *for* it. But that other in and for it is not a *dependent* element in the sense that it for its part looks outside of itself for its ground of being. As



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it is a logical element, it is likewise itself the whole, in its turn sublating what sublated it.

How many wholes, then, are there? There is one whole, and there are many wholes; for the hard and fast line of difference that runs between "one" and "many" is a line that can be drawn only when dealing with elements that are thought under the relation of mutual externality. The logical universe can, therefore, with no more propriety be called a monistic universe than a pluralistic one; nor, on the other hand, is there any more propriety in calling it pluralistic than in calling it monistic, except in the polemical interest of denying an asserted one-sided monism. Neither a pluralism with no real logical unity, nor a monism with no self-active distinctions, is compatible with the laws of thought. And those who read Hegel's monism into a system in which there is no liberty except the one *single* liberty of the one *single* whole, make Hegel do violence to the fundamental law of the totality of each logical distinction, a law which he himself made central within his system. The truth is neither a Spinozism in which the distinctions disappear, nor an idealistic monism [1] in which the distinctions are efficiently operated by a free comprehending unity, not an atheistic pluralism [1] in which there is no logical ground of interrelation between the distinctions. Mere monism and mere pluralism are transcended in the view that emphasises the logical necessity of the free distinctions, and the synthetic as well as analytic character of each of these distinctions. In fine, the truth is neither an absolute *One* at the expense of the Many, nor the separately independent *Many* at the expense of the harmonising unity of the One; but it is the *unity* of the One and the Many, a logically free One of the logically free Many, which are themselves, each, the One.

And it is just here that logic makes room for ethics. For ethics is possible only when there is interrelation between free self-active centres of consciousness, each recognising itself and others as members of one commonwealth of souls, in which each has rights and duties.[2] Each has rights, be-

[1] I do not mean to imply that all idealism is monistic or that all pluralism is atheistic; all I say is that there is a kind of idealism that is monistic, and a kind of pluralism that is atheistic; and of both I say that they are logically inadequate.

[2] I wish here to acknowledge my indebtedness to Professor Howison of the University of California for the great help I have received from him on this point,—as indeed on very many others brought out in this series of papers,—although the use I have made of this truth is not such as he would greatly approve, denying as he does any ethical value to Monism.

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cause each is the end toward which all work; each has duties, because each works toward accomplishing the end of others. Each has rights, because each is the synthetic unity within which the others function as moments; each has duties, because each functions as a moment within the unity of the several others. No logic that does not provide for such a relation between self-active members of a system is ethical; no ethics that does not provide an intellectual and dialectical basis for such a community is logical. And as the Hegelian ethics rests upon the dialectic, and as the Hegelian dialectic provides satisfactorily for ethics, the charge often made that Hegel merely asserts freedom for the individual without vindicating it, is seen to be baseless. The Hegelian dialectic is adequate to all scientific needs—ethical needs among others—because all scientific needs are but expressions of dialectical necessity; but the Hegelian dialectic that is adequate, is the *Hegelian* dialectic, not the *pseudo-Hegelian* dialectic, which occupies and concerns the critics. Of course in claiming adequacy for the Hegelian dialectic I do not claim that it is the last word in philosophy, or that as Hegel worked it out it is inerrant. All that is meant is that this insight into the fundamental relation of the One and the Many is the insight that solves the true problem of present-day thought, the problem of making an ethical world intelligible and an intelligible world ethical.

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## VI.—CRITICAL NOTICES.

*Theoretical Mechanics: an Introductory Treatise on the Principles of Dynamics.* By A. E. H. Love, M.A., F.R.S., Fellow and Lecturer of St. John's College, Cambridge. Cambridge, 1897. Pp. xiv., 379.

The study of matter, as conducted by the physicist, deals, broadly speaking, with two fundamental problems. These are concerned, respectively, with its geometrical constitution and with the laws of its motion. The two are closely akin; for while we deal, in discussing the first, with the general nature of the spatial configuration of matter, we seek, as an answer to the second, for the relation between configuration and motion, or, what comes to the same thing, for the relation between successive configurations.

The present work, being engaged on Newtonian Dynamics, is occupied primarily with the second of these problems. It is, however, a rare merit in Mr. Love that he emphasises the connexion of his problem with that of the constitution of bodies; and this remains a merit even if, as will be suggested below, the connexion should be not quite as he states it. But we must first examine what is said as to the laws of motion. In doing so, it will be well to avoid, as far as possible, the specially mathematical portions of Mr. Love's book, and confine ourselves to those fundamental points which are of interest to the philosopher.[1]

The discussion of the postulates of Dynamics assumes, almost necessarily, a more or less historical form. This is owing to the fact that Newton's laws, though still found mathematically adequate for most purposes (if not for all), were stated by him in a form which requires, for its validity, a difficult process of explanation and interpretation. I cannot do better, on this point, than quote Mr. Love's Preface.

"The foundations of Mechanical Science," he says, "were laid by Newton, and his achievements in this department constitute perhaps his most enduring title to fame. Later writers have developed his principles analytically, and have extended the region of their application, but, in regard to the principles themselves, they have acted the part of commentators. Nevertheless

[1] The portions which will be mainly discussed are the following: Preface, chaps. i., v., viii., xiii., with the notes at the ends of chaps. v. and viii.

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we may trace a tendency in modern investigations, which is of the nature of a gradual change in the point of view: there is less search for causes, more inclination to regard the object to be attained as a precise formulation of observed facts. On another side there is an important respect in which modern writers have departed from the form of the Newtonian theory. The philosophical dictum that all motion is relative stands in pronounced contradiction with Newton's dynamical apparatus of absolute time, absolute space, and absolute motion. It has been necessary to reconsider in detail the principles, and the results deduced from them, in order to ascertain what modification would be needed to bring the theory of Rational Mechanics founded by Newton into harmony with the doctrine of the relativity of motion."

The problem thus stated is one of essentially philosophical importance. Owing, however, to the fact that "the purpose of this book is didactic," as we are told in the Preface, a lengthy critical discussion of controversial points would be out of place. It is sometimes necessary, therefore, to supply from elsewhere the grounds for rejecting opposite theories. Acknowledgment is made to the works of Kirchhoff, Pearson and Mach, and a comparison with these is often useful in supplementing an unavoidable brevity. At the same time, Mr. Love appears entirely free from the anti-metaphysical dogmatism which mars the work of Mach, and still more of Prof. Pearson, while he has made an almost immeasurable advance, in philosophic correctness, on such hitherto standard works as Thomson and Tait's *Natural Philosophy.*

The first point on which we must be clear is the relation of Rational Dynamics to experience. I do not mean the question whether, as Mr. Love says (pp. 1, 2), the postulates of Dynamics are derived from experience, or are in part *a priori;* I mean the question whether, in view of the apparent inaccuracy of our results, we are to hold the postulates rigidly true, and only our knowledge of particular circumstances at fault, or whether, as in Economics for example, we shall regard our postulates themselves as approximations, in which case we shall test our abstract theory primarily by self-consistency. This question is one of great importance; for if the inaccuracy lies in the postulates, the true laws may bear very little logical affinity to those at present current, and the latter, therefore, may sink from philosophical principles to mere mathematical first approximations. It may be, for example, that a complete mechanical theory in terms of the ether would use different laws of motion from Newton's, and would exhibit Newton's laws, like Coulomb's law of the inverse square in electrostatics,[1] as subordinate results of a mathematical deduction.

That the traditional laws of motion are not ultimate principles

[1] See Hertz, *Electric Waves*, p. 225.

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of nature, appears to be the view of our author. He speaks of an "abstract logical theory of Mechanics," and says: "The test of the validity of a theory of this kind is its consistency with itself, the test of its value is its ability to furnish rules under which natural events actually fall" (p. 2). More explicitly he says (p. 92): (Rational Mechanics) "may be regarded as a purely ideal system, and its validity is unaffected by the question whether it has or has not any relation to the observed motions of natural bodies. . . . The objects of which it treats are pure objects of thought."[1] I cannot help thinking that this statement, if it does not actually go too far, is at any rate liable to mislead the student. Mechanics is not, like the rules of chess, a purely conventional system, in which the relation to experience is wholly irrelevant; it cannot be idle to ask whether its postulates are true or false. The *objects* of our Science—rigid bodies, perfect fluids, particles, etc.—may perhaps be regarded as fictions, but even then, not only do the postulates remain either true or else in need of correction, but it would seem that even the matter to which we apply them must, in the last analysis, be regarded as having some exact and precisely definable nature. Probably, however, Mr. Love's statement is intended not to deny this, but only to point out that he is concerned with the deductive portion of the Science, not with the inductive verification of its postulates as applied to actual matter, and that the deductions remain logically valid if the postulates are found inaccurate.

As regards the formulation of the laws of motion, the author follows Mach in regarding them as constituting, essentially, the discovery and definition of mass (p. 101). He also agrees with Mach in considering it as the object of Dynamics to furnish a description of motions. But he adds that this description involves the notion of the mutual actions of bodies (p. 85). It is possible, of course, to define mutual action in a way which does not obviously involve anything causal, and this is no doubt intended in the definition given (p. 86). But can we not combine the essentials both of the causal and of the descriptive view, by stating it as the problem of Dynamics to find a universal relation between configuration and motion? By this means we avoid the supposed obscurities of the causal view, as well as the apparent arbitrariness of the descriptive view. If *mere* description were in question, it is difficult to see what ground we should have for belief in general laws. The essential problem, one might say, is this: from a given condition of a material system, to calculate the condition at some other time; and this problem, since it involves the validity of general laws, is not included in mere description. Inference from past to future, or from one body to another, at once transcends the powers of mere description; but this fact is hidden, I think, by a wrong view of the so-called uniformity of nature. Mr. Love appears, like Prof. Pearson and many other writers,

[1] *Cf.* also Critical Note, pp. 141-4.

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to regard this uniformity as consisting in the recurrence of actual sequences of events (*cf.* p. 1). But such recurrence is never more than a gross approximation: no condition of the Solar System, for example, is ever exactly repeated. Nevertheless the uniformity of nature is not approximate, but consists in the permanence of laws, by which, whatever the condition of the Solar System, its next condition is rendered determinate. It would seem preferable, therefore, to regard the connexion of configuration with motion, rather than mere description, as the problem of Dynamics, and as the problem which the laws of motion render soluble.

The statement of the postulates of Mechanics is naturally much influenced by the doctrine of the relativity of motion, and consequently emphasises and amplifies the third law. It contains two points which are not obviously to be found in Newton's statement, but seem none the less essential. The first is that "all changes of motion arise from the mutual actions of the particles of bodies," and the second is that the mutual action is in the line joining the particles. The former is contained in the wider statement, which I should prefer to substitute for it, that the accelerations of particles depend upon configuration. The latter is often supposed to be implied in Newton's third law, but whether it be a gloss or an addition, it is important as specifying, to a certain extent, the manner in which acceleration depends upon configuration. It appears almost self-evident, and could, I believe, be proved, as soon as we make the proviso—required for the truth of the parallelogram of forces[1]—that the mutual action of two particles is independent of all other particles.

In chapter viii., on Work and Energy, the postulate is introduced (p. 136) which I should prefer to place at the threshold of Dynamics, the postulate, namely, that change of motion depends on configuration, or that all forces, when the circumstances are thoroughly analysed, will be found to be positional forces. If this postulate is to be always true, we must assume that, in an apparently rigid body, there are other motions besides those of the body as a whole. This involves, as Mr. Love points out (p. 137), that the body is not really rigid, and suggests, what on other grounds is highly probable, that the body has a molecular structure. In this suggestion, the author finds a difficulty, which is discussed in a Critical Note (pp. 141-4). On this point, I cannot help thinking that a mistake has been made. For discontinuity, surely, is of the essence of the Newtonian theory, and constitutes its chief distinction from the Dynamics of the ether. Thus Maxwell says (*Electricity and Magnetism*, § 529):—

"We are accustomed to consider the universe as made up of parts, and mathematicians usually begin by considering a single

[1] The parallelogram of forces cannot, I think, be deduced, as Mr. Love deduces it, *merely* from the definition of force as a vector, for it involves the physical axiom of the mutual independence of forces.

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particle, and then conceiving its relation to another particle, and so on. This has generally been supposed the most natural method. To conceive of a particle, however, requires a process of abstraction, since all our perceptions are related to extended bodies, so that the idea of the *all* that is in our consciousness at a given instant is perhaps as primitive an idea as that of any individual thing. Hence there may be a mathematical method in which we proceed from the whole to the parts instead of from the parts to the whole."

What this quotation illustrates, and what I wish to make clear, is, that the Newtonian method is based upon the conception of a *particle*, as the ultimate self-subsistent element of matter, and that this conception is essentially discrete. The conception is not, therefore, it would seem, correctly described as that of "bodies, as continuous and made up of particles" (p. 141). Continuity, in the strict sense, excludes particles. To conceive the particles as "continuously filling the volume within the surface of the body" (p. 93) does not really remove the discreteness of the conception. The continuous filling must be regarded as accidental, so to speak, not as essential. To give it up, therefore, when we are regarding matter as made up of particles, is to make no fundamental change in our point of view; on the contrary, the continuous filling must itself, if it is to be accepted, be a result, not *a priori* probable, of experience as to various hypotheses. The natural result of Newtonian philosophy, as appears historically, is the discrete Dynamism of Kant, or rather of Boscovich. The only motive, apparently, for regarding bodies, in Newtonian Dynamics, as having a continuous structure, is one of practical convenience. That continuity of structure is in any way logically bound up with Newton, I cannot see; rather I should say that *discreteness* is the natural outcome of regarding matter as consisting of particles whose interactions are mutually independent. The molecular theory, therefore, though it undoubtedly introduces practical difficulties, seems, logically, rather of the nature of a simplification and development of the Newtonian stand-point.

Even admitting, however, that the difficulty is rather practical than logical, the way of escaping from it, as sketched by Mr. Love (pp. 142-4), is highly instructive and important. It consists in the adoption of the energy method, in which everything is deduced from the expressions for the kinetic and potential energy of the whole system. Although this method, historically speaking, has been derived from Newton's laws of motion, it may well be, as our author appears to suggest, that it will ultimately be found derivable from less special postulates, and that these will contain the true and accurate laws of motion. This question is connected with the question discussed above, whether, namely, the laws of motion are to be regarded as accurate, or only as first approximations. The suggestion of the latter alternative constitutes, to my mind, one of the greatest merits of the present work.

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There remains only one question to discuss, but this is perhaps the most important of all—I mean, the relativity of motion. Mr. Love, like Mach and most modern writers, sees no insurmountable difficulties in the way of reconciling this relativity with the laws of Dynamics. The best way of discussing the question is in connexion with the law of gravitation, where the difficulties are most apparent. This is the course adopted by our author, who devotes his final chapter to a very thorough discussion of the matter. Briefly put, the course of his argument is as follows: Position, motion and acceleration are, by their very meaning, relative. Wherever we speak of the velocity or acceleration of a particle, therefore, we must specify the set of axes relative to which they are estimated—the frame of reference, as it is called. Now as long as our questions are purely kinematical, the frame of reference is indifferent. But when we come to kinetics, we have to chose what have been called "kinetic axes".[1] For, while accelerations depend upon the frame of reference chosen, we have declared, by the third law of motion, that accelerations always occur in pairs. We cannot, therefore, choose as our origin any particle of the material system considered, since this particle would then have no acceleration, and the necessary reciprocity would be lost. Generally speaking, we cannot choose as origin any particle having any dynamical connexion with the system considered. Practically, we may evade the difficulties by referring the motion to a very distant system, as when motions within the Solar System are referred to axes fixed relatively to the fixed stars. But if we wish to make gravitation universal, we shall have to abandon this practical makeshift. For this, and for the more general law that accelerations occur in pairs and are inversely proportional to masses, we must choose as origin, for the motion of an independent system, the centre of mass of the system, or some point moving uniformly relatively to the centre of mass. Through this origin we have *one* natural axis of reference, namely, axis of resultant moment of momentum (p. 365).

Now to this statement, if regarded as a satisfactory account of the postulates of Dynamics on the basis of relative motion, two objections may be made. The first is, that *two* natural axes of reference are required, and that, as appears from the Dynamics of a rotating system, the second cannot be arbitrarily chosen, and will have to be fixed, not in relation to any matter in the system, but in relation to what can only be regarded as empty space. This is the point of Newton's apparently unanswerable remarks on centrifugal forces.[2] The second objection is even more funda-

[1] See "Newton's Theory of Kinetics," by Mr. W. H Macaulay; *Bulletin of the American Mathematical Society*, July, 1897. This expression is not used by Mr. Love, but it affords an abbreviation which is often convenient.

[2] In the scholium which precedes the laws of motion.

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mental. The centre of mass, which was to form our origin, is itself a deduction from the laws of motion, and presupposes a method of comparing mutual accelerations. It cannot, therefore, be supposed known in enunciating these laws. Masses are compared by means of the law that the mutual accelerations of two particles are inversely as their masses. But this law presupposes a frame fixed independently of the particles in question. Hence it is a vicious circle to deduce the appropriate frame from an assumed knowledge of the relative masses. The only way in which, theoretically, this difficulty could be evaded, would be the discovery of some body (like C. Neumann's "Körper Alpha") dynamically unrelated to the system considered. But dynamical relation to all other matter, as the law of gravitation illustrates, is of the essence of all matter. Hence the difficulty would seem *theoretically* unsolved. Practically, of course, it is evaded, for most purposes, by the very small degree of dynamical connexion which is assumed to exist between the Solar System and the fixed stars. But the relativity of motion, as Mr. Love says, is a *philosophical* dictum, and philosophy has a right, therefore, to examine its consequences from a philosophical standpoint.

The difficulties in the way of the old Newtonian absolute view are, as every one knows, almost, if not quite, insuperable. Nevertheless, in some sense, it reappears with extraordinary persistence. It is to be observed that a frame determined, as Mr. Love expresses it, by dynamical considerations (p. 365), may yet involve absolute space. Suppose, for example, that nothing existed outside the earth. The proper deduction from Foucault's pendulum would be, then as now, that the earth rotates with a certain definite angular velocity. The axes relative to which the rotation takes place are fixed, in a sense, by relation to the earth: we can assign their relation to the matter of the earth at any specified moment. Nevertheless, the assumed rotation is meaningless unless we regard our axes as fixed by a constant relation to empty space. For the axes themselves, being not matter, nor fixed by a geometrical relation to matter, are nothing but mere empty space; the assumed rotation, therefore, is a rotation relative to nothing. This brings out an important point: for truly relative motion, our axes must have to *some* matter a relation which is not only definable, but constant.

Although there appear to be unremoved difficulties in the relativity of motion, Mr. Love has certainly chosen a lesser evil than Newton's absolute motion, and has succeeded, by a candid inquiry, in presenting the prevailing view about as well as it is possible to present it. His last chapter ends with some admirable remarks on the measurement of time; but as this is a less debatable topic, I shall not discuss it here.

The present work is undoubtedly, from the point of view of first principles, the best English book on Dynamics; its free sceptical discussions are a most refreshing contrast to the scornful dog-

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matism of most mathematicians; and its views, even where they cannot ultimately content the philosopher, seem for the present, on most points, the best with which the Science of Dynamics is at all possible.

B. RUSSELL.

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*Johannis Wyclif Tractatus de Logica.*[1] Now first edited from the Vienna and Prague MSS., by MICHAEL HENRY DZIEWICKI. 3 vols. London: Published for the Wyclif Society, by Trübner & Co., 1893-99. Pp. xlvi., 241; xlvi., 236; xxxviii., 239.

M. H. DZIEWICKI has merited the thanks of the whole Philosophical World for his learned, important, and painstaking labours. If it has been too much left to foreign scholars like Drs. Lechler, Buddensieg, Beer, Loserth, the present Editor, and others, to do Wyclif justice, we ought at least not to fail of giving their work its due. No more ought we to fail of giving Wyclif his due, so that, while Wyclif be proclaimed a great philosopher, our philosophers may not be content to remain in ignorance of his writings, of which the world has been in possession for 500 years. In his careful and sympathetic Introduction to the first volume, Dziewicki puts in a plea for deductive logic which is not unneeded before the extravagant claims of Induction at the present day. For Induction is, after all, but a provisional process whose results can take the form of Causal Laws only under the lead of deductive reasoning. We have, in Induction, to search out the universal as it lies hid in the isolated cases that may be presented, but the enumerative view of Induction which the Scholastics took was one which never could arrive at Universal Truth or knowledge. The Inductive and deductive aspects are now known to be aspects that relate to the order in which we view reality, and do not bespeak antagonism. Dziewicki also shows a justice to Scholasticism that we have too often missed in Philosophical writings of our time. Current thoughtlessness regarding Scholasticism allows its spirit of speculative depth and inquisitiveness, its unmeasured confidence in the powers of the intellect, its transmitted wealth of principles, elements and terms, all to pass into the inheritance of to-day with rarely a word of grateful acknowledgment. Not so Dziewicki, who is keenly alive to the merits of the Scholastics. He points out, however, how the *Logica* of Wyclif differs from the works of the Scholastics, in that it leaves aside argumentation and Syllogisms, vital as these seemed to Scholasticism, the reason being that Wyclif wished to counteract Nominalism, and give a Realistic turn to Logic. Nor did he wish to counteract Nominalism only, but also certain theological tendencies of his time. Hence this

[1] Read before the Aristotelian Society, on 6th June, 1898.

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"Doctor Evangelicus" styled his work, in the Proemium, the *Logic of Holy Writ*, meaning thereby to point to the Holy Scriptures as rule of faith and right reasoning. A true instinct led the Schoolmen to place Logic in the forefront of philosophical training, seeing that thought, as the instrument of philosophy, finds the primary attention it deserves in Logic as the theory of thought. The realistic tendency of Wyclif is early disclosed in his remarks on Identity at the close of the second chapter. Analogically, says Wyclif, all things, God and His creatures, are identical (*Omnia sunt idem in entitate*, p. 10). Dziewicki duly notes the extreme character of this realism, which goes far beyond the position of those who hold to analogical identity, but regard such identity as not real because analogical. God is, with Wyclif, identical with the creature in respect that they are both being. But Wyclif has his answer for those who think he identifies God with the creature, and makes substance to be accident. His answer is, in effect, that *that which* is being in the case of God cannot be logically concluded to be the same with *that which* is being in the creature. Wyclif is marked by the usual Scholastic subservience to Aristotle in the matter of categories. Though the Aristotelian scheme of Categories has met with severe enough criticism from the Port Royalists, Kant, Lotze, Mill and others, yet these critics have, in turn, been called to account, with more or less validity and force, by writers like Baynes, Mansel, Grote and Bain. What we still wait to know is how these categoric principles determine thought, the while they do not of necessity come into our consciousness. Much that Wyclif held in common with our modern logical treatises may be passed over without comment, as well as much that partakes of the inevitable tendency to mere verbal quibbling. We must be content to note some characteristics of the work, so replete with interesting material even for those of us who *are* moderns, and cannot will things otherwise.

When we come to "Logicae Continuatio," we find it laid down in the first chapter that truth is the correspondence of a proposition with that which it primarily signifies, that is to say, with its most general signification. "Unde Aristoteles," says Wyclif, "amplians hoc nomen, *res*, ad significandum quamcunque huiusmodi veritatem, dicit quod in quantumcunque res est vel non est quam proposicio primarie significat, est ipsa vera vel falsa" (p. 78). Here we soon again become confronted with the undue Realism of Wyclif, who holds that, though two men are two animals, yet they do not make four, but three, and on this wise. The number three is made up of the two individuals *plus* the Universal Animal or Man, present in, yet distinct from each. This suggests the famous Thomist theory of Hypostasis as something real or superadded to the substance, according to which, however, the real difference yet obtained only between singulars, and the Universal Man, conceivably present in all, was no more than an abstraction. Wyclif's Realism is not

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remarkable for moderation. What wonder that Logicians of to-day hold all real existence to be necessarily singular, and yet reject Realism, the general notion not being, to them, of any metaphysical significance?

Passing to the second Tractate, we find Difference and Otherness discussed. The mysterious "*that which*"—persisting through all changes—again figures largely in the discussion, in which, as our Editor remarks, many Hegelian ideas lie all undeveloped, sealed up in Scholastic phraseology from the mind of Wyclif himself. In Wyclif's treatment of the Contingent, it is maintained that the ultimate cause of all indetermination is God —*omnis talis indeterminacionis causa ultima erit deus* (pp. 168-169). We are so far with Wyclif as to say that it is precisely as souls do choose the God-centred life that they rise to indeterminate heights of freedom and power of choice. The Contingent Truths depend, with Wyclif, on the human will (*possunt principiari a voluntate humana*, p. 169) as their immediate cause. One instinctively recalls in such connexion what Prof. James has urged, in dealing with the dilemma of Determinism, that somewhere for us *possibilities* exist, and form a part of truth, this world of ours not being one of simple unbending fact.[1] In strict keeping with this postulation of possibilities, which have so great relation to the future, Wyclif lays it down that all indetermination depends on things to happen in the future. The freedom to which even to-day we aspire is a freedom hewn out of the actualities of the present under the pattern of that ideal freedom which lures us on by the possibilities it presents to the perfected life. Our freedom is therefore real, but it is always becoming, and has never wholly attained, neither is already finished and perfect. It is the freedom of those who not only choose the ideal good, but who have also gained toil-won ascents of actual freedom. Necessity and contingency are not absolutely opposed, in the view of Wyclif. It is, however, vain to try to evade the lines being sharply drawn between these two. Wyclif's doctrines of necessity were anathematised by the Council of Constanz in 1415, for the temper of that time was such at least as could find no delight in bold paradox.

We now pass to something of epistemological interest, namely, the senses in which knowledge is to be understood. A more modern treatment would, of course, treat Logic as the theory of thought, or the study that is concerned with thought as a subjective activity, and would leave to epistemology the inquiry into the objective or cognitive validity of thought as knowledge. All that Wyclif can say is that actual knowledge involves unhesitating belief and the truth of the object. There is no proper definition of knowledge, no discussion of its nature, nothing, in fact, which does not make us feel that our epistemology of to-day, with all it has to say of the relation of subject and object in knowledge,

[1] *The Will to Believe*, p. 151.

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belongs to a world that Wyclif never knew. The question of beginning and end is as troublesome to Wyclif as it has been to Logicians generally. We ought, according to Wyclif, rather to say that God *is*, than that He *was*, before the world, eternity being, with Him, anterior to the creative moment by nature, not in respect of time. Wyclif recalls for us the Lotzean conception of God, not as conceived *in* time, but as the Founder of Time. To Him, as raised above the succession of moments in virtue of His Eternal Absoluteness, the beginning and the end are one. Certainly we cannot make time the form of His life, but must rather make Deity the seat of Time. *To begin* means for Wyclif the first *now* of being and the last of non-being, while *to end* means the last *now* of being and the first of non-being. The conception of non-being, so introduced, is one which has proved very troublous to philosophic apprehension, as every one familiar with the history of the conception knows, and the last word has not been spoken upon the subject. It is right that Philosophy should inquire into the nature, reality, and necessity of non-being as the opposite, or rather the negative of being. This category of non-being has not failed of attention in recent philosophy, stirred to the inquiry under lead of the Logic of Hegel. The metaphysical tendency of Wyclif is again shown in his disposition to discuss such questions as the cessation of *non-entity* at creation, and the Lordship of Deity anterior to the Creation. To-day we are still positing creative energy in Deity that annuls non-being, and calls forth, as the Logos, creaturely existence out of this sphere of non-being. Wyclif also (p. 214) discusses the possibility of the Infinite being infinitely increased, and thinks we may come to know the Infinite by comparison with the Finite. We need not wonder that Wyclif seems haunted by the quantitative infinite, seeing it had received attention from Aristotle, and has shown such wonderful persistence even in modern Philosophy. We are concerned rather to remember that we could not even know the finite as such, but for its opposition to the Infinite. The Infinite is really prior, as positive condition of the finite, for how, save as first knowing the Infinite, could we really know the finite? So close in with the very possibilities of thought lies the Absolute, as the primary logical element.

In Dziewicki's second volume, we have Hypothetical Propositions discussed and classified. As the Hypothetical judgment is really an abstract universal, this discussion perhaps not unsuitably paves the way for Wyclif's taking up thereafter the problem of the Universals, when he wages war with the Nominalists. Of course, the thoroughgoing Nominalist makes the name the only general element—universals being to him mere words (the *flatus vocis* of Roscellinus)—but the mediating Conceptualist position imports the universality of the idea as well, and it means a return towards realism. The Conceptualist position at once affirms the particulars to be real, and the universal to be distinctly the pro-

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duct of thought, language being, as expressive of knowledge, the bond that unites them. The Conceptualism of Abelard went so far with Nominalism as to hold nothing real but the individual, and even in the individual only that which really is individual. The conflict between Nominalism and Realism was indeed the basal one in Mediæval Philosophy, and the influence of Aristotle, though he was by no means a Nominalist, proved paramount in drawing off thought in a Nominalist direction, which so well harmonised with the interest of Science and exact knowledge of the concrete. For there can be no doubt that mediæval thinking showed a tendency to identify the real with that which was merely abstract or logically existent, so that at last a nominalistic type of thought is seen to prevail. A more moderate type of Realism than that of Wyclif found favour with most of the Schoolmen, and our Editor is careful to point out how much more difficult it is for the Nominalist to meet such a realistic attitude, which puts the Universality, as we know it, formally in the mind (*formaliter in mente*), and fundamentally in the objects (*fundamentaliter in re*). It does not seem desirable to follow all the windings of the extended discussion on Universals by this "Doctor Resolutissimus," as his Editor is disposed to style him. It gives interest to one's study of Wyclif's bold and powerful presentation, however, to remember how little this controversy over Universals is an outworn theme, how far indeed the question is from having reached any final solution in its scientific bearings to-day.[1] The form has become modernised, but the problems are the same, so soon as men take up the theory of knowledge, from which they are indeed inseparable. The Scientific Realism of to-day is speedily righted by a critical epistemology whensoever it fails to do justice to the idealistic elements in all knowledge. But science is not a thing of mere naming, nor its truth a thing of mere words, nor are its classifications necessarily arbitrary. We may grant to realism the truth of the types and classes, the genera and species, of science, without denying some wholesome force to the Nominalist contention that our conventional general propositions have need of the corrective influence of individual things. We admit the Nominalist contention as to the symbolic use of language, but we deny the Nominalist insistence on a particular image or a pictorial representation. The Conceptualist position is certainly to be preferred, whereby general terms and relations can be thought or conceived by mind, and general terms do represent ideas in the mind and qualities exterior to it. These terms do not thus, however, represent anterior forms of being as urged by realistic contention. The need and place for all these forms of thought—realistic, nominalistic, and conceptualist—were eventually disclosed when writers like Albertus Magnus showed how universals are *ante res* in the Divine or archetypal mind; are, at the same time, *in rebus* in respect of their common nature;

[1] *Cf.* Windelband, *History of Philosophy* (Eng. edit.), p. 229.

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and are, likewise, *post res* as abstracted from things by the mind. But there is little room for wonder that men early felt the need to avoid any conceptualist mode of treating these universals as such unreal conceptions that the work of Science, in comparing and classifying and striving to reach general truths, should have been stifled. The ideal, the universal, must always be correlated with the actual, the particular, and their reciprocal character no more overlooked.[1] Wyclif found it hard enough to steer clear, in his Realism, of that pantheistic tendency which Abelard so often charged home upon Realism as its logical issue, and this may be said even if the pantheistic element amounted to no more than a tendency. This pantheistic danger comes very near to Wyclif in the use he makes of the conception of Transcendent Being, as something common to God and the creature, and he eludes the danger only by great logical adroitness and argumentative subtlety.

A discussion on Causal Propositions follows (chap. v.), in which Wyclif makes dexterous use of the Conception of modal, not substantial, difference, and holds that accidental modes in God are not to be viewed as identical with His Essence. Wyclif's thought here inevitably recalls the Hegelian identification of immanent power or force with its manifestation, its identification of the non-ego with the ego, but Wyclif would have been swift to perceive what a purely subjective process and what a purely notional result we have in all this movement, which is only that of mind itself. For all things are then real *in concreto* only in so far as they are moments in the vast unitary development which sums the dialectical necessity of the Hegelian mind. Wyclif maintains that no inherent accident has any existence *per se*, or adds anything to the substance (p. 103). But the notion of substance has its difficulties to this day. The meaning of substance cannot be widened, so as to be synonymous with being, Wyclif tells us (vol. i., p. 154), unless we are content to reduce accident to the sphere of non-being. But this widening is precisely what Spinoza later did not hesitate to do—to make everything substance, for that everything exists. Whether Spinoza meant it or no, what he succeeded in doing was to reduce all things to substance in the abstract, or the ultimate abstraction of *ens* or pure being. Not that he intended to designate by substance Being in general, but rather, in his severe renunciation of the determinate and particular, the absolute unity or complete totality of things. None the less does his mode of negativing the finite lead to infinite substance which is merely dead or indeterminate being. Hence the defect of Spinoza's view of the absolute substance, which is not as yet living and self-determining. Nothing is substance to Spinoza but what exists *in et per se*, the substantiality of an *ens causatum* or an *ens per aliud* being thereby denied. As if it were not enough that substance—even such real substances as we ourselves are—

[1] *Cf.* on this point De Sarlo, *Saggi di Filosofia*, vol. ii., pp. 140-148. Torino, 1897.

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should be conceived *per se*, without needing to exist *in se!* So was it that mediæval Realism, with its Scholastic conceptions of the most real being, found in Spinoza its last term or final development.

At the close of the chapter, Wyclif remarks on the origin and possibility of sin in a somewhat unusual manner. For, though Wyclif locates defect in us, not in God, yet as First Cause of all, God has the possibility of our sinning fixed on Him as a real contingency (*summa contingentia*, p. 108), along with other indirect responsibilities. Wyclif's thought, like that of some thinkers still, seems to fail of realising the implications of our being free and finite agents in a moral system of things. It does so because due scope is not allowed to the free self-determination of man, the causative agency of God so haunting it. No one who thoroughly understands what rational free agency involves would set our peccability, our liability to sin, in such close relation to God's Absolute Causality as Wyclif does, but would relate it more to our own free choice or volition. The idea of Causal Efficiency has obscured for Wyclif the light that illuminates us when, as free though fallible creatures, we act through reason's laws and truths. It seems also hid from Wyclif's view, as it is from the thought of some thinkers to-day, how the action of God is really designed and directed, under a free moral system, towards the prevention of evil and sin, even though, in our imperfect knowledge of the Absolute Reason, we may sometimes be tempted to wonder why God does not do more.

The next chapter (vi.) suggests the tendency of Scholastic Philosophy to apply mathematical methods to metaphysical subjects—a tendency by no means confined to that Philosophy, however freely Wyclif may reveal it. A very curious result emerges in this chapter, when Wyclif seeks to rectify any wrong or unguarded impression which the previous chapter may have given touching God's relation to evil. God cannot, it seems, make man commit moral evil, but, the evil taking place, He can make such fact of sin to be good, for the sin is true and therefore, according to Wyclif, good. A rather specious interpretation, it must be said, when the result or inference, as existing good, is credited to Deity, to whom, however, the premiss is not attached. Whatever exists must be good, according to Wyclif, so that evil practically ceases to be evil and has become good—a position which we have found paralleled in our own generation, but happily not often.

We pass to notice the third of Dziewicki's volumes. Here we are again impressed with the inutility of many of the Scholastic subtleties, but who shall say that many problems which to-day agitate the Philosophical mind may not, as many centuries after, appear quite as useless or absurd? Even these mediævalisms have, for us, a certain historic interest, and are much more than simply intricate puzzles of the past. Omitting much that is



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curious in Wyclif's theory of time and space, we pause to notice his conception of the Infinite. God alone is infinite (p. 36), but whatever exceeds our conception is infinite even when not infinite in itself. What may be infinite to one will be but finite to another, and in neither case will be infinite to Deity. All which is, at least, as intelligible as the modern postulation at once of finitude and infinity for Nature, where the infinity does not mean "more than a given amount of existence".[1] The success of attempts, whether mediæval or modern, to apply the laws of logic to the Infinite may not always have been impressive, but we nevertheless welcome and give them free course. Meanwhile we are not content to conceive the Infinite in any such derived and secondary fashion, as would be implied in making it the mere negation of the finite.

An interesting point of difference from Scholastic theory meets us later in Wyclif. He does not simply follow the ordinary Scholastic dualism as to form and matter. Matter and form are not to him absolute separable realities; he postulates a sort of trinity (*modus trinitatis*, p. 121), consisting of matter, form, and compound, in which all are different though in a sense identical. Matter and form are to be regarded qualitatively rather than as quantitative parts, and matter is, in Wyclif's view, eternal (pp. 121-122). It is, of course, quite feasible to conceive matter as eternal, and yet hold creation to be necessary in order to give it form. The Aristotelian distinction could in the Scholastic period be retained, and yet room found for creation in an absolute sense, for those who chose so to regard the issues, however repugnant the notion of such absolute origination might have been to Aristotle himself.

In the next chapter (x.) Wyclif sets out by denying that whatever is known is where the knower is, on the ground that everything would thus be everywhere with God. Wyclif works his way, through varying degrees of interest, up to a lengthened discussion of Time. Time is eternal as the World (p. 162), and Time is everywhere (p. 163). *Is*, with him, really extends to all time, and signifies, in fact, eternity (pp. 174-177). Time requires a *before* and an *after*, and these are found only in movement, without which there is no time (p. 211). If only imagination moved, this would itself be movement (p. 213).

Looking back over the whole three volumes of this work, it remains to be said that, if we have not cared to indulge in peddling criticism, that is both because we have judged it more important broadly to indicate the comprehensive and subtle character of Wyclif's mind and his dexterous skill in handling the weapons of Logic, and because we are too grateful for the wide learning, great acumen, and patient skill which his Editor,

[1] *Appearance and Reality*, ch. xxii.

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M. H. Dziewicki, has brought to bear upon his toilsome task. Discount his work as any may, to him it may still, with as much cordiality as truthfulness, be said—*Exegisti monumentum.*

JAMES LINDSAY.

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*The Origin and Growth of Plato's Logic.* With an account of Plato's style and of the chronology of his writings. By WINCENTY LUTOSLAWSKI. Longmans, Green & Co., 1897. Pp. x., 547.

THIS is an interesting and important work by an enthusiastic student of Plato. The substance of a considerable portion of it has already appeared in a condensed form in the *Archiv für Geschichte der Philosophie,* vol. ix., pp. 67-114, and elsewhere; but the present volume is the first full and complete account of the author's minute and laborious observations.

In an introduction of sixty-three pages Mr. Lutoslawski reviews the theories of his predecessors on Plato as a logician, and on the authenticity and chronology of Plato's writings. The result is to show that a large number of investigators, working to some extent on independent lines, are beginning to agree in maintaining the late origin of the so-called dialectical dialogues. This conclusion Mr. Lutoslawski attempts to expand and justify by arguments drawn (1) from the style of Plato, (2) from a comparison of the logical contents of the different dialogues. Accordingly, the first part of the work (pp. 64-193) is, primarily speaking, philological, the second (pp. 193-527) philosophical.

The philological section, though ostensibly only preparatory to the exposition of Plato's doctrines in part ii., is in our judgment the most important and original portion of the whole work. Mr. Lutoslawski presents us for the first time with a complete account of the stylometric observations which were begun by Campbell, and have been continued by a large number of students in Germany and elsewhere. He attempts to sift and classify them, determining which are significant for the student of Plato's chronology, and which should be neglected. A list of 500 significant peculiarities is drawn up and employed to determine the "stylistic affinities" of the different dialogues by a new and original method. It is assumed—and no one will quarrel with the assumption—that Plato's latest dialogue is the *Laws,* and accordingly "The Laws are our standard of comparison for the next latest five dialogues, and for earlier works the group of the six latest dialogues, *Sophist, Politicus, Philebus, Timæus, Critias, Laws*" (p. 153). The number of stylistic peculiarities occurring in the various dialogues determines (within certain limits) their date of composition, allowance, of course, being made for their relative size. But it is also necessary to take account of the

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importance of the peculiarities observed. This Mr. Lutoslawski does by arranging the peculiarities in four classes, very important, important, repeated, and accidental, and counting the first as equivalent to four, the second to three, the third to two, accidental peculiarities. We thus obtain a large number of "units of stylistic affinity" and the relation between different dialogues can be estimated to a decimal point.

Such, in outline, is the method of the "Science of Stylometry," as laid down by Mr. Lutoslawski. The author regards it as a "new science of style, which will enable us to decide questions of authenticity and chronology of literary works with the same certainty as palæographers now know the age and authenticity of manuscripts" (p. 193). Truly a glorious prospect! The birth of such a science awakens high hopes; but will it survive the ἀμφιδρόμια of criticism? μετὰ δὲ τόν τόκον τὰ ἀμφιδρόμια αὐτοῦ ὡς ἀληθῶς ἐν κύκλῳ περιθρεκτέον τῷ λόγῳ, σκοπουμένους μὴ λάθῃ ἡμᾶς οὐκ ἄξιον ὂν τροφῆς τὸ γιγνόμενον, ἀλλ' ἀνεμιαῖόν τε καὶ ψεῦδος (*Theæt.*, 160 E).

Unless we are mistaken, many scholars will be reluctant to allow that the true essence of style is capable of being "weighed and measured and counted" in this fashion. τί δαί; ταλάντῳ μουσικὴ σταθμήσεται; will occur to not a few. Others will admit that such a process is legitimate enough in itself, but will deny that "stylistic affinity" of this kind affords a sure and inevitable basis on which to build a chronological theory of Plato's dialogues. Surely an author *may*, if he chooses, *deliberately* imitate his own earlier or later style, for some special purpose. And the possibility of such intentional stylistic variation is least of all excluded in a writer of Plato's infinite variety and scope. A still larger number of scholars will, in our judgment, be unwilling to allow that Mr. Lutoslawski's peculiarities are sufficiently important in themselves to justify any certain conclusion as to the relative order of the dialogues. Some of them are highly noteworthy, and their cumulative force is considerable; but a large number appear to be extraordinarily trivial. On page 102, for example, the varieties in Plato's use of the dual are made to furnish no less than fifteen stylistic peculiarities, and among them the following: ταὶν (*Polit.* 1, *Tim.* 1, *Legg.* 3), νῷν (*Symp.* 1, *Phædr.* 1, *Theæt.* 1, *Soph.* 1, *Polit.* 3, *Phil.* 4, *Legg.* 2), τέχνα as dual of τέχνη (*Rep.* 2, *Soph.* 1, *Polit.* 1, *Legg.* 1), σφῷν (*Euthyd.* 4, *Theæt.* 1, *Legg.* 12). The occurrence of these particular forms is surely no evidence of date, unless we can prove that the exact meanings which they bear could have been, and often were, otherwise expressed by Plato in dialogues of a different period. In point of fact, Mr. Lutoslawski himself is occasionally driven to adopt a different and far more natural solution. If σφῷν is a 'peculiarity of later style,' how comes it that Plato uses the word no less than four times in a work so early as the *Euthydemus*? Mr. Lutoslawski has his answer ready: "This coincidence between *Euthyd.* and *Legg.* Roeper

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explains by the circumstance that in both dialogues one person is speaking to two others, intimately associated" (p. 102). Such an explanation is surely satisfactory, and the principle on which it rests is one of wide, and indeed universal, application. The Platonic dialogues differ not only in scene, setting, and dramatic situation, but also in subject and treatment; and a particular 'stylistic peculiarity' is often nothing more than the inevitable expression of the peculiar shade of meaning which the author wishes to convey. And we have no reason to suppose that a particular shade of meaning indicates in *every* case a particular date or period in an author's literary activity.

The general verdict on Mr. Lutoslawski's stylometric investigations will, we think, be "Not proven". Without denying the provisional validity of his fundamental principle, we desiderate a still more exhaustive enumeration of stylistic peculiarities, and a much more careful and scholarly sifting of those already enumerated. In particular, many of the arguments at present based on community of vocabulary should, in our opinion, be discarded. We cannot, for example, assign any value whatever to the following, among several other instances of this kind: ἰστέον (*Parm.* 1, *Legg.* 1); ἀπέχω = disto (*Rep.* 1, *Parm.* 2, *Tim.* 1, *Crit.* 2, *Legg.* 2), πᾶν ζῷον for 'every animal' (*Rep.* 1, *Polit.* 1, *Phil.* 2, *Tim.* 2, *Legg.* 5). The observation of linguistic peculiarities in Plato has been too often conducted in a mechanical spirit, without sufficiently distinguishing between the various connotations of words and particles. It may be hoped that the new Platonic lexicon, under the editorship of Professor Campbell, will do something to remedy this defect.

In the second part of his book Mr. Lutoslawski traces the development of Platonic doctrine from the *Euthyphro* to the *Laws*, frequently supplementing the chronological results of part i. by arguments derived from the treatment and subject-matter of the dialogues, and from cross-references, allusions to contemporaries and the like.

Three leading periods are distinguished: (1) the Socratic, comprising the dialogues generally admitted to be early, down to the *Gorgias*, which forms the transition to the second stage; (2) the period of middle Platonism, introduced by the *Cratylus*, *Symposium* and *Phædo*, and including the *Republic* and the *Phædrus;* (3) the later period, to which belong the two introductory and critical dialogues, *Theætetus* and *Parmenides;* the *Sophist*, *Politicus*, and *Philebus*, containing Plato's new theory of science; and finally the three dialogues which represent the latest development of Plato's philosophy, *Timæus*, *Critias* and *Laws*. The gradual growth and development of Plato's philosophy throughout this sequence of dialogues is skilfully traced, although occasionally the author seems to lay undue stress upon trivial or even wholly insignificant points. Few will attach importance to the argument that the *Symposium* is later than the

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*Protagoras*, because "the rule laid down in the *Protagoras* (347 C) to exclude flute girls and similar artists from philosophical banquets is repeated in the *Symposium*" (176 E) as if it were "a matter of course, while it is explained at length in the *Protagoras*" (p. 243). Still less need we suppose that the *Parmenides* is late, because what is there "repeatedly said of youth (130 E, 135 D, 137 B), that young men are inconsequent, that one must learn while young, and that youth is pleasing and compliant, is only explainable if the author was, comparatively speaking, an old man when writing" (p. 408). Why so? Such remarks are surely sufficiently explained by the age of Parmenides, in whose mouth they are placed. Why need we suppose that every one who paints old age is old himself? Other questionable or erroneous observations will be found on pp. 314, 315, 355. The last of these passages deserves to be quoted as a characteristic specimen of the arbitrary identifications which are not uncommon in investigations of this kind. "If Plato in the *Phædrus* credits Simmias with a greater merit, this means that he preferred his *Phædo* to the *Symposium*." Here Mr. Lutoslawski appears to us in danger of forgetting that the spokesmen in Plato's dialogues are not characters in a novel, but historical personalities. Why should we interpret the man Simmias as the dialogue *Phædo*, or the man Phædrus as the *Symposium* of Plato?

The most interesting and important point in Mr. Lutoslawski's exposition of Platonic doctrine is connected with the theory of Ideas. In the later Platonism the separate existence of ideas, according to him, is entirely abandoned. "Ideas exist only in souls—they are eternal and unchangeable because their first model is created by God in his own thought" (p. 523). Even in the earlier period, we are told that "the separate existence of ideas outside any mind has never been expressly affirmed in clear words" by Plato, "because the poetical metaphors of the *Phædrus*, *Republic*, *Phædo* and *Symposium* cannot be taken as literal expressions of abstract truth" (p. 447). Mr. Lutoslawski here touches on the fundamental difficulty of Platonic criticism, *viz.*, what is the proper place and function of the allegorical method of interpreting Plato. It is perhaps too much to expect that scholars will ever agree on this question. One man will always see an allegory in that which to another seems only a statement of fact. The appeal in the last resort must always be to Plato's language, and, tested by this standard, the theory represented by Mr. Lutoslawski appears to us untenable. The expressions *αὐτὸ καθ' αὑτό* and even *αὐτό* alone, which are constantly used of the Ideas in Middle Platonism, in our judgment imply the self-existence of the Ideas. *αὐτό* means 'by itself,' exactly as in the idiomatic *αὐτοὶ γάρ ἐσμεν*. If Aristotle had never written a syllable about Plato, the *Phædrus* alone would have been enough to give currency to the traditional belief in the transcendence of the Ideas. The adhesion of Aristotle, the whole of whose criticism of Plato loses its force

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on any other supposition, might have been expected to remove the subject from the sphere of controversy. But Allegory, like Proteus, escapes from every fetter; and to Mr. Lutoslawski, even the "pure ideas" of the *Phædrus*, "without shape or colour, intangible and invisible, not fixed in sensible particulars, but free and independent," signify only "that pure concepts of reason are never fully realised in the things to which they apply, as for instance, absolute equality is never found identical with physical equality" (p. 340). With regard to later Platonism, Mr. Lutoslawski is still more emphatic. Nothing will induce him to admit that there is a single passage in works written after the *Parmenides* "supporting the assumption that ideas exist outside every soul" (p. 448). The well-known passage in the *Timæus* (51 E-52 A) is therefore, we suppose, "allegorical".

Enough has been said to indicate the general character of this work. Although we are unable to agree with much of the reasoning, we do not deny that the conclusions as to the order of the dialogues may be, generally speaking, sound. In any case there can be no question that Mr. Lutoslawski has rendered a great service to Platonic scholarship. Of his industry, zeal, and enthusiasm, it would be impossible to speak too highly; and his acquaintance with the literature of his subject is probably unique. His book is one of the most suggestive and stimulating works on Plato which the present generation has seen.

J. ADAM.

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*La Philosophie de Charles Secrétan.* Par F. PILLON. Paris: Félix Alcan. Pp. 197.

OF the three chapters of which this work consists the first two contain an admirably clear account of the fundamental ideas in Secrétan's metaphysics and ethics respectively. The third, which takes up rather more than half of the book, contains M. Pillon's historical and critical estimate of Secrétan's philosophy. In the earlier sections of this chapter the author first traces some changes which Secrétan's views underwent in his later works, especially in regard to the influence which the conception of evolution had upon his thought; and then proceeds to compare Secrétan with certain other thinkers—Plotinus, in whose system M. Pillon finds an interesting parallel to Secrétan's conception of absolute liberty, Duns Scotus, and finally Descartes, whose points of difference from and contact with Secrétan are discussed at some length. M. Pillon then enters upon his own criticism of Secrétan's philosophy, dealing successively with Secrétan's conception of liberty, his theory of creation, which is found to be pantheistic, his conception of a divine eternity, his professed conciliation of monism and monadology, and finally the fundamental doctrines of his ethical theory. It is to M. Pillon's criticisms, naturally, that the reader turns with most interest, and it is on them that I have to offer some critical remarks.

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That Secrétan's conception of absolute liberty should be severely criticised was to be expected, but I think that M. Pillon in his justly severe criticism of the conception hardly gives the recognition they deserve to the speculative motives which underlie it. Secrétan argues, in effect, that God, if he is to be truly absolute and unconditioned, cannot be limited by any laws given to him from without. Therefore we cannot say simply that God acts according to his nature, for then his nature would be a limit imposed upon his action. To give full effect to the absolute self-determination of God we must say that God gives himself the laws of his own nature, he makes himself what he is, he is what he wills to be, his liberty is absolute. As against this argument as it stands M. Pillon's answer (which occurs in another context, but is quite general in its import) is conclusive: "Si la liberté consiste à se faire ce qu'on est, à être l'auteur de son être, de sa nature, il n'y a pas de liberté; car pour déterminer ou faire quoi que ce soit, il faut d'abord être quelque chose" (p. 108). In other words, the conception which Secrétan requires us to think is a paradox. It is impossible to think that which gives itself the laws of its own nature, *before* it has given itself these laws—and this is equally true whether the antecedence be logical or temporal. M. Pillon is therefore right when he says that logic will not allow us to admit Secrétan's conception of liberty. At the same time it is only fair to recognise that this criticism does not get rid of the standing metaphysical problem which Secrétan's conception expresses in so striking a way. If we cannot accept Secrétan's way of securing the absolute unity of God, neither can we acquiesce, from the absolute point of view, in the dualism of action according to a nature already defined. M. Pillon elsewhere charges Secrétan with employing in his so-called 'liberty' a psychological term which, in his metaphysical application of it, is really emptied, though Secrétan does not seem to see this, of all its psychological meaning. And the criticism, no doubt, is for the most part just. M. Pillon insists that the term 'liberty' must be used in its proper, *i.e.*, its limited and relative sense. "Ce qui caractérise," he says, in his discussion of Secrétan's view of evolution, where the criticism has a special appropriateness, "Ce qui caractérise et définit l'acte libre et nous ne voyons pas comment il pourrait être autrement défini, c'est qu'il ne dépend qu'*en partie* de la nature de l'agent. Il est vrai, d'autre part, que l'être libre se fait soi-même; mais cette proposition doit aussi être restreinte: l'être libre se fait soi-même *en partie*" (p. 109). But obviously, if we criticise Secrétan entirely from this relative standpoint, we are virtually excluding from our view the real speculative problem. And I think that M. Pillon has hardly recognised this, or at any rate has omitted to express himself on the subject in the present work.

I find a very similar omission in his criticism of Secrétan's views on the question of the divine eternity, but as the case is similar in principle I need not stay to consider it.

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In his criticism of Secrétan's attempted conciliation of monism and monadology M. Pillon objects to Secrétan's treatment of psychological individuality, the individuality of self-consciousness. Secrétan has argued that when we consider the contents of self-consciousness, and not merely its form, the isolation of the individual becomes impossible, the apparently individual mind is found to be involved in countless ways with other minds, so that its very existence depends upon its sharing a common life. Accordingly we must regard mere self-consciousness as only a form or limit. And in Secrétan's view it is only in moral individuality that we find a real barrier to monism. M. Pillon contends that Secrétan's depreciation of the individuality of self-consciousness depends upon his Kantian and subjective estimation of the forms of thought, and that, so far as moral individuality operates by means of these very forms, it also is formal and unreal. As against the substance of Secrétan's argument this criticism seems to me rather far-fetched and ineffective. Whether or not one accepts Secrétan's doctrine of the merely formal character of self-consciousness, one may surely admit the broad truth of the view that it is pre-eminently in action that the individual recognises and realises himself as such.

In dealing with Secrétan's ethical theory M. Pillon very rightly begins by rejecting altogether the illusory metaphysical basis upon which Secrétan thought to construct it—the identity in point of substance of all finite existences with each other and with God. "Fût-elle une réalité métaphysique," says M. Pillon, "l'identité de substance serait absolument étrangère à la morale" (p. 179). But the two criticisms by which he proceeds to justify this rejection of Secrétan's metaphysical basis of ethics seem to me somewhat open to question. M. Pillon appears to argue that Secrétan's error lay in basing moral duties upon merely factual or metaphysical relationships, whereas the relationships in question are really moral, and are themselves *based upon* moral duties, while moral duties cannot be based upon anything except the ultimate notion of duty itself. "Ce n'est pas la charité qui dérive du rapport de la partie au tout, de l'organe à l'organisme; c'est, au contraire, par la charité que s'établit ce rapport" (p. 182). I think that M. Pillon is here tending towards an over-statement of the real objection to Secrétan's doctrine. Secrétan's error lies not so much in assuming the existence of the relationship, as in defining the relationship in terms which have no moral content, no bearing upon the moral end. As M. Pillon rightly says, Secrétan might as well have based his ethics upon a physical or a chemical unity as a metaphysical one like that of substance—for they are all alike in having no moral significance whatever. On the other hand, it is clear that there must necessarily exist between the individual and those towards whom he has duties, spiritual or moral relationships, which are the specific ground of these duties; he must be able to contemplate those towards whom he has duties as connected somehow with the moral purpose of his life, otherwise it is impossible

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to see how they could be anything to him or he could have any duties to them. "Vous devez vous unir de volonté aux esprits créés, vos semblables," says M. Pillon (p. 182). One might be hypercritical enough to ask whether the fact that we belong to the same species of created beings is any more a ground of obligation than our participation in the same substance. But here we touch M. Pillon's second criticism of Secrétan's doctrine. Apparently M. Pillon would altogether refuse to look for any such ground of obligation as that here assumed to exist. He objects that, in making identity of substance the moral motive (or, as I should prefer to say, the basis of obligation), Secrétan is virtually resolving 'la charité' into 'un amour-propre éclairé, réfléchi, approfondi': because the individual only seeks the good of others in so far as it is also his own good, the good of the whole of which he is a part. I confess I cannot agree with the criticism, but it would of course be out of place to enter upon this controverted topic here.

There is one other point that seems to call for remark in M. Pillon's criticism of Secrétan's ethical theory. Secrétan has argued that his fundamental ethical principle, 'charity,' contains within itself, and is in fact the true foundation of, the principle of justice, *i.e.* regard for the individuality or freedom of others; for 'charity' wills the good of the other, that is to say, it wills that he should realise his true nature, that he should will the good, and this means, since he is a free agent, that he should realise himself freely, that he should freely will the good. M. Pillon replies by distinguishing three senses of freedom: the metaphysical, the juridical, and the moral; and argues that, in strictness, 'charity' seeks only the moral freedom of others, and if left to itself would even at times use constraint to bring them to this moral freedom; consequently the principle of 'charity' must be supplemented and limited by an independent principle of justice. M. Pillon anticipates, indeed, the objection that juridical freedom is a condition of the development of moral freedom, but, just because he remains at the juridical point of view, he seems to me to miss the full meaning of the position which he is criticising. For so far as moral freedom implies an intelligent choice of the good for its own sake, it can be influenced only by moral motives. If therefore constraint can operate to produce moral freedom at all, it must operate by producing such motives. But if it operates in this way can we any longer say with perfect generality that it violates a right, or must we not leave that to be decided by a consideration of the conditions under which it is employed? When M. Pillon says: "le droit a besoin d'être protégé contre la charité, parce que la charité ne saurait trouver dans son principe ni dans son expérience l'obligation de respecter le droit" (p. 197), he is surely going too far.

But, although one may not always agree entirely with M. Pillon's judgments, there can be no question that his work is an excellent piece of exposition and criticism.

H. Barker.

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# VII.—NEW BOOKS.

*Studies in the Psychology of Sex.* Vol. i.: *Sexual Inversion.* By Havelock Ellis. London and Watford: University Press, 1897. Pp. xvii., 204.

This book (which has already appeared in German in a translation by Dr. Kurella) is the first volume of a work in which the author proposes to deal, from a general psychological rather than merely medical standpoint, with some of the main normal and abnormal aspects of the sexual impulse. The work will probably extend to five or six volumes, and (as explained in the special preface to this first volume), though it would be more logical to begin with the study of the normal sexual instinct, the present volume, in consequence of the assistance rendered by collaborators, was completed first.

In a "General Preface" to the whole work, the author states that he has had this task in view for more than twenty years, and that a psychological and anthropological study of human secondary sexual characters (*Man and Woman*), published some years previously, was written as an introduction to it. The author also states his belief that "the question of sex—with the racial questions that rest on it—stands before the coming generations as the chief problem for solution. Sex lies at the root of life, and we can never learn to reverence life until we know how to understand sex."

In the "Preface to Volume I.," the author points out the special interest attaching to the problem of sexual inversion, and remarks that before his first cases were published, "not a single British case, unconnected with the asylum or the prison, had ever been recorded". He adds: "Very few indeed would not be surprised if it were possible to publish a list of names of sexually inverted men and women who at the present time are honourably known in Church, State, Society, Art or Letters".

Congenital sexual inversion, defined as "sexual instinct turned by inborn constitutional abnormality towards persons of the same sex," is the chief subject of the book. The first chapter ("Introduction") is, however, mainly concerned with a brief general consideration of the undifferentiated phenomena of homosexuality among animals, the lower human races, soldiers and the lower social classes in Europe, criminals, and men of exceptional intellectual or moral aptitude (Michelangelo, Winckelmann, Whitman, Verlaine, etc.). The theories which regard climate and race as the sole factors of homosexuality are stated, only to be dismissed on account of the universality of the phenomena.

The second chapter reviews the scientific study of sexual inversion from Westphal (1870) through Ulrichs, Tarnowsky, Krafft-Ebing, Moll, Raffalovich, etc., to the present. "As it now presents itself, it is a psychological and medico-legal problem so full of interest that we need not fear to face it, so full of grave social actuality that we are bound to face it."

The next chapter, dealing with inversion in men, begins by touching

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upon homosexual phenomena in schools, and discusses whether, as Max Dessoir states, the sexual impulse is undifferentiated in youth, so that (as Prof. James believes) every one has the "germinal possibility" of inversion. Only a qualified agreement is given to this conclusion. The sexual impulse in youth is *relatively* undifferentiated. Complex classifications of inversion are rejected, only two classes being accepted: (1) simple inversion, and (2) psychosexual hermaphroditism (*i.e.*, with an attraction to both sexes); in both classes the inversion may be either congenital or acquired. Really acquired inversion (*i.e.*, without any congenital basis of abnormality) the author believes to be extremely rare. The histories of twenty-seven new cases are presented in this chapter.

In the following chapter inversion in women is fully dealt with, and four new cases published.

In chapter v. the author analyses his own cases, thirty-six in number (including five that remain unpublished). As regards race, the cases were with three exceptions (Americans) all British; in four there was a German element, possibly a significant fact. Twelve of the subjects belonged to ordinarily healthy families. In the others there was disease or abnormality, usually of a mild character (eccentricity, neurasthenia, alcoholism, etc.). The personal health was in twenty-six cases good, though some of these possessed a highly nervous temperament; eight were in delicate health, one in very bad health, and one became insane. In twenty-nine cases the abnormal instinct appeared early in life without any previous attraction to the opposite sex; in only four cases was there any change of impulse towards the same sex in adult life; in all these latter four the sexual instinct, or at all events the general health, was weak. In nineteen cases the attraction was marked before puberty, in such cases its manifestations being usually psychic. But the precocity of the abnormal instinct remains marked, and this fact is probably significant. In about one third of the cases there is reason to believe that some event, or special environment, in early life had influence in turning the sexual instinct into homosexual channels, or calling out a latent inversion; but the author gives grounds for believing that the influence of suggestion has by some writers been greatly overestimated, and that suggestion is inoperative when no predisposition exists. Attraction to both sexes is much rarer than simple inversion, only five of the author's cases being thus attracted. It is pointed out that even in inversion a kind of pseudo-sexual attraction rules, the invert being attracted to a person unlike himself or herself, though of the same sex. Inverts are not usually attracted to one another. The male invert is by no means always feminine in disposition and appearance; but at the same time there is a general tendency, often not obvious, to approach the feminine type. The author suggests that there is also a tendency among inverted persons to be somewhat arrested in development and to approach the child-type, and associates this tendency with their sexual precocity. Sexual manifestations vary very greatly in different individuals; in three cases, from moral and other reasons, there had been no physical manifestations. Artistic aptitude was found in no less than twenty-four of the cases, or 66 per cent. as against 30 per cent. (according to Galton) for the general population; a marked taste for physical science was found in no case, though three of the subjects were medical men. The moral attitude was noted in twenty-nine cases; three loathe themselves; six or seven are doubtful; the remainder, a large majority (including all the women), consider their moral position the same as that of normal persons, while one or two even regard inverted love as nobler than ordinary sexual love, provided there is mutual understanding; the chief regret in a few cases is that they are obliged to lead a double life.

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The following chapter discusses and criticises the various theories put forward in explanation of sexual inversion. The author compares inversion to colour-blindness, coloured hearing, and similar abnormalities arising on a hereditary basis, and points out that abnormality is not necessarily disease. Embryonic hermaphroditism is regarded as the key to inversion. In emphasising the importance of the congenital element in inversion, the author points out that no hereditary transmission of emotions and ideas is involved, but simply the transmission of a more or less modified reflex mechanism. On this point the author is in full agreement with the very elaborate discussion in Moll's more recently published *Untersuchungen über die Libido Sexualis*.

The last chapter is devoted to "Conclusions". For the prevention of spurious homosexuality the author advocates co-education and the healthy mingling of the sexes from childhood onwards. With regard to the medical treatment of this condition, the author chiefly advises removal of the associated neurasthenia, etc., and severely condemns the radical method of Schrenck-Notzing (frequent hypnotic sittings combined with visits to a brothel) as worse than the disease. Even when successful, this "cure" merely succeeds in rendering the invert capable of experiencing both normal and abnormal impulses, and of procreating. Neither of these is a very desirable end. "Sometimes, indeed, the tendency to sexual inversion in eccentric and neurotic families seems merely to be Nature's merciful method of winding up a concern which, from her point of view, has ceased to be profitable." With regard to the legal relationships of sexual inversion, the author approves of the general tendency shown by new European codes not to regard homosexual practices as *per se* a criminal offence. "It should be the function of the law in this matter to prevent violence, to protect the young, and to preserve order and decency. Whatever laws are laid down beyond this must be left to the individuals themselves, to the moralist, and to social opinion."

The volume includes numerous appendices by various hands: a paper on "Homosexuality among Tramps," from personal observation, by "Josiah Flynt," a summary of "Ulrichs's Views," a letter in defence of homosexuality from an eminent American professor, the history of the Countess Sarolta V., and "A Note on Sexual Inversion" by an American woman physician.

H. E.

*The New Psychology.* By E. W. Scripture. The Cont. Sci. Series. London: Walter Scott, 1897. Pp. xxiv., 500. 124 Illustrations.

This work is a popular statement of the purposes of the New Psychology. It is written, the Preface tells us, to make clear the aims and methods of psychology, rather than to give a systematic exposition of its results or to cover the whole field of investigation. This intention is reflected in the main divisions of the work (Methods, Time, Energy, Space, Past and Present), which may be said to constitute an introduction with statement of thesis, three illustrative parts, and a history of the science. When we examine the subject-matter of the three illustrative parts, however, we see that much more is attempted than the modest statement of the Preface implies, and that they really contain a summary of results in most of the branches of experimental psychology.

The classification of the material of so large a field under three heads gives rise to some peculiar groupings. Under Time, we have, first, a

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chapter on Standards of Time, that defines or describes 'time' and explains several instruments devised for its accurate measurement; then six chapters on Reaction Times; and finally a chapter on memory, called Time Influence, and one on association, disguised under the title of Succession in Time. Under Energy we find a chapter each devoted to Standards of Energy, Voluntary Action, Fatigue, Passive and Active Movements, Resistance and Heaviness, Lifted Weights, Pressure, Pain, Feelings, Sound and Colour. An obvious criticism is that the division is based on physical categories that have no counterpart in psychology, and that even the physical accompaniments of mental process do not always fall under the head in which the process is treated. Hearing and Sight are not chiefly distinguished by the amount of energy expended upon the sense organs in producing them; and it is more than questionable whether the temporal aspect of association is its most important one.

Examination of the single chapters shows a number of cases in which topics are treated in unusual proportions, or with emphasis upon what are usually regarded as minor points. Thus in the chapter on Active and Passive Movements we find 5 pp. devoted to a statement of the results obtained by Goldscheider and Müller and Schumann, and 9 pp. to experiments on table-tipping, telepathy and kindred phenomena of automatic movement. So, too, in the chapter on Lifted Weights: Weber's law, the method of r. and w. cases, and special results in this particular field, are allowed 5 pp., because "with Weber and Fechner they played an extremely important part in establishing the new psychology," while the influence of size upon apparent weight receives 10 pp., and is treated in great detail with reference to the age of the subjects experimented on, the extent and kind of knowledge of size, and the sense that gave rise to this knowledge. Some of this disparity in length of treatment is due, of course, to the popular interest of certain problems which are comparatively unimportant for the development of the science at large; but one is forced to the conclusion that much of it owes its origin to Dr. Scripture's personal interest. The effect of size upon apparent weight has been investigated in the Yale laboratory; the other work has merely a historical interest. A similar bias seems to be at work in the allotment of space in the chapter on association, perhaps to have led to the treatment of association at all in this connexion. Certainly no other psychologist would assign association in general less than 10 pp., and then use seven of them for the discussion of mediate association! The author has overlooked the difference between the existence of mediate association, which is fairly well proven, and the adequacy of his experimental method for demonstrating it, which seems to be pretty thoroughly disproven. Again, nearly all the apparatus described is of the author's own devising, and the appliances of his laboratory are noticed in detail. Such definiteness of setting may, in itself, give the reader a clearer conception of the methods of a science than could be attained by more general treatment; but it also supports the conclusion that the writer has been influenced in his choice of material by personal feeling. The footnotes show the same tendency. More than a quarter of them either refer to Dr. Scripture's own writings, or to the Yale Studies. True, the Preface says that the book is not intended to be a complete treatise, but rather to indicate the problems and methods of psychology. But the introduction of technical details in descriptions of apparatus and discussions of method, and the statement that certain tables and appendices are for the convenience of those who desire to use the book in the laboratory, give evidence that the author had other ends more or less clearly in view when he compiled the work.

More serious are certain errors, and an inadequate or misleading treat-

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ment of different subjects, mainly in the optical portions of the book. In the chapter on Colour the Young-Helmholtz theory is the only one mentioned; it is assumed, in the explanation of colour mixture, as if it were an established fact. It is natural that the theory should be used where the chief emphasis is upon the laws of colour mixture, which it was invented to explain, and which alone of optical phenomena it can satisfactorily account for. But it seems undesirable, even in a popular work, to give the impression that one of several rival theories is the only one, and that it is entirely adequate to the facts. Listing's law is omitted in the discussion of eye movements, unless it be confused with the false torsion of projection on a plane surface; and several statements of the form of the horopter are either incorrect or very obscure. Hardly less serious is the new use of terms that have already a definite place in psychological terminology. Thus 'field of regard' and 'point of regard,' the recognised English equivalents of *Blickfeld* and *Blickpunkt*, are used in Wundt's metaphorical sense for field and point of attention, and even in this use are restricted in their application to the one sense of sight. Similarly, in the attempt to avoid technical expressions for the higher processes that are not to be discussed in the book, we find such words as will, attention, feeling and imagination employed with different meanings, where accuracy and accepted custom would require more definite phrases. All retrograde steps of this kind are particularly regrettable at the present stage of development of psychological nomenclature.

There is, however, much to be praised in the book. Its whole attitude is original. We are given a psychology written entirely from the subjective point of view, with very little reference to physiological or physical facts. There is a consistent attempt to describe and classify the phenomena of consciousness as immediately given, without regard to their conditions in past experience or anatomical structure. Whatever we may think of this as an ultimate method, we must at least agree that the time has come to take a survey of the results of psychology purely as psychology; and this the author does, in clear and concise form. A statement is made of the methods of experimentation, of the results, and of the variation of results under different conditions; and nothing more is attempted in the way of explanation. Sometimes, indeed, this negative attitude is replaced by a dogmatic assertion that we cannot and ought not to try to know more. As regards the fact of single vision with two eyes, *e.g.*, we read: "There is no question of why to be asked, any more than why red and yellow make orange. It is a matter of fact in either case, and psychology is concerned with determining the laws that govern such combinations." This sentence expresses the fundamental fault that we have been criticising throughout in its special manifestations. There is no sense of the larger whole, of a science which shall combine the discrete facts. Each problem stands by itself, and is of interest for itself alone. And while each problem is attacked with great ingenuity, there is no recognition of the need of proportion in treatment, no subordination of the separate parts to a single conception, of the particular investigations to a general investigation.

There is still some suggestion of a laboured writing down to the level of the ordinary intelligence, which has led at times to such sentences as: "The purpose of rhythm is to aid in clearness of the feeling for time intervals". On the whole, however, the reader has little to complain of on this score. The material is clearly presented, without falling to the juvenile story-book style. The illustrations are apt and simple, without being undignified. One is particularly impressed in this connexion by the striking use that is made of all the most recent inventions of the practical world. Tricolour photography, the kinetoscope and the polaris-

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ing stereopticon are all made to contribute their share to the work. On the whole, it is one that has much value for the psychologist, and one that will undoubtedly receive a full meed of popular approval.

W. B. PILLSBURY.

*The Psychology of Suggestion.* By B. SIDIS. With an Introduction by W. JAMES. New York: D. Appleton & Co., 1898. Pp. x., 386.

This book, which bears the secondary title "A research into the subconscious nature of man and society," falls into three parts, dealing respectively with suggestibility, the self and society. Pt. i. gives a record of ingeniously devised experiments which, under a certain degree of mathematical torture, yield a quantitative formulation of normal suggestibility. A comparison of their results with hypnotic phenomena brings out the difference between normal and abnormal suggestibility: the former varies as indirect suggestion, and inversely as direct suggestion; the latter the reverse. Suggestibility at large varies as the amount of disaggregation, and inversely as the unification of consciousness.

Pt. ii. is the most elaborate and least satisfactory portion of the work. The datum of psychology, we are told, is the moment-contents forming the psychic concomitant of the activity of the single nerve cell. Functional association of cells is paralleled by synthesis of consciousness. We have, first, desultory consciousness, the "psychic life of the lowest invertebrates". Then comes reproductive or synthetic consciousness, which is instinctive, impersonal experience. Above this stands recognitive consciousness; memory still without personality, the mentality of the higher vertebrate animals. All these three stages are stages of the subconsciousness. Now we rise to desultory self-consciousness, serial or discontinuous personality. Next in order follows synthetic self-consciousness, "represented by man's mental activity"; and, finally, we reach, in the eternal moment of self-consciousness, the hypothetical perfect person. The subconscious self, looked at as a whole, is "essentially a brutal self". Indeed, it is not a 'self' at all, but merely a consciousness; it has no personality; it is stupid, uncritical, non-moral, associative,—everything that the true personality is not.

It is not probable that the 'normal' psychologist will accept this classification. We may grant all that can be granted to the current theory of mental "dissociation" or "sejunction" and its cellular parallel, but we may not ignore the established facts of mental mechanics. The author seems hardly to realise that normal psychology exists outside of Professor James' two volumes, which themselves interest him more in their discussion of the abnormal than of the normal mind. The consequence is an entire failure to see his problem in perspective. A knowledge of experimental literature would have helped him very considerably in pt. i.; similar knowledge would have shown him the difficulties and inadequacies of the view he has put forward in pt. ii. Normal psychology has a good deal to say about the mechanism of memory, of recognition, of impulse, of association, as genetic psychology has about the relation of 'lower' minds to 'higher'. You cannot get the adult human mind out of the cell mind by a merely additive aggregation, even if you declare your conviction (in a footnote) that "the very nature of mental activity is *synthesis*". Nor can you replace the work accomplished through analytic introspection by a list of subconscious states: "hypnotic, somnambulic, hypnonergic, hypnoid, hypnoidic, hypnoidal, hypnoleptic," however long you make it. It is the old mistake: the author takes his

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pathological literature and pathological cases as things apart, and works them over with great pains and ingenuity, arriving at little or no result of general validity for the simple reason that normal psychology, the legislative science, is left out of account.

Pt. iii. is written in lighter vein. It gives a slight historical sketch of social epidemics, stampedes, social crazes, from the first Crusade to the present time, and draws certain conclusions as to social suggestibility, with especial reference to American society. "American society oscillates between acute financial mania and attacks of religious insanity. . . . [It] *seems to suffer from circular insanity*."

Dr. Sidis writes vigorously, with the full courage of his convictions. He makes definite contributions to mental pathology, and sets many old facts in a new light. The book is concerned with matters that appeal both to the psychologist and to the neurologist, and would, undoubtedly, have got itself discussed though it had lacked Professor James' Introduction. But the presence of such an Introduction, even from so eminent a psychologist, cannot compensate for lack of psychological knowledge on the part of the author. And lack of comparative knowledge, want of perspective, is the weakness of the book.

E. B. TITCHENER.

*The Study of Children and Their School Training.* By FRANCIS WARNER. New York and London: The Macmillan Co., 1897. Pp. xix., 264.

"This book has been written," says Dr. Warner in his Preface, "in the hope of aiding an advance in the care of children, and in the practice of educational methods, by promoting a more exact study and classification of the children to be cared for and trained; while giving an account of some conditions of childhood in its many varieties, as seen from the standpoint of the observer who records what he sees as in other branches of physical science." The range of the author's experience is attested by the following statements: "I shall here use points for observations which I began to study twenty years ago. . . . In 1888 a committee was formed by the British Medical Association to study school children as to their mental and physical status, and . . . I was enabled to examine individually 100,000 children upon a fixed plan."

The volume is, then, not so much a contribution to child study, in the ordinary psychological sense of that phrase, as it is to child anthropometry and child hygiene. There can be no doubt of its utility to parents and teachers; not only are the things that Dr. Warner tells them intrinsically worth knowing, but they are things that must be known before the study of child psychology can begin. *Nemo psychologus nisi*—so far as these facts go—*physiologus*.

After a general introduction come two chapters on the growth and construction of the child's body, and the development of its brain. Four chapters deal with methods of observation, and the bodily and mental examinations to be made. Ch. viii. discusses such conditions as sleep, inattention, irritability, excitement. Ch. ix. distinguishes the types of childhood. Ch. x. treats of adolescence. Chs. xi. and xii. give instructions for care and training, hygiene and health management. A final chapter generalises the author's conclusions in the form of seven "propositions concerning childhood". The book contains reports of fifty cases, and has nineteen figures and eight tables inserted in the text.



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*Evolutional Ethics and Animal Psychology.* By E. P. EVANS. New York: D. Appleton & Co., 1898. Pp. vi., 386.

The central thesis of this book—for the most part a revised and enlarged reprint of previously published magazine articles—is that the animal mind differs from the human in degree only, and that the measure of man's moral duty to the animals is determined by the amount of this gradual difference. Pt. i., evolutional ethics, contains chapters on the ethics of tribal society, religious belief as a basis of moral obligation, the ethical relations of man to beast, and metempsychosis. Pt. ii., animal psychology, treats of mind in man and brute, progress and perfectibility in the lower animals, ideation in animals and men, speech as a barrier between man and beast, and the æsthetic sense and religious sentiment in animals.

The essays are written in a chatty, desultory fashion, without much regard to the logical difficulties and requirements of the theory of mental and moral evolution. Sir Henry Maine is followed in the first Part, Prof. Max Müller dissented from in the second. The author would probably deprecate technical criticism, and defend the anecdotal method as that best adapted to his purpose, the convincing of the average man. He has read widely, if not always discriminatingly (*cf.* the nine page bibliography that ends the volume). At times, however, he is not very scrupulous in the use of material and the weighing of evidence; there are quotations from early editions which have been expressly disowned by their authors, and stories are told as true which the expert has long since ceased to take seriously.

*The Method of Darwin: A Study in Scientific Method.* By FRANK CRAMER. Chicago: A. C. McClurg & Co., 1896. Pp. 232.

In a review of the *Origin of Species*, republished in *Lay Sermons*, the late Professor Huxley took occasion to show that Darwin's method satisfied the requirements of scientific logic, as laid down by Mill. Elsewhere in the same volume he emphasises the value of the natural history sciences for mental discipline, for training in logical method. In the book before us Mr. Cramer has chosen Darwin as an instance of the "best practice in matters of reasoning," and made his works the basis of an analysis of scientific method. In justifying his choice of a model the author rightly says that "Darwin's custom of presenting all sides of a case very frequently led him to expose the original course of his thought".

The book contains chapters on Darwin's own views of method; on classification, analogy, deduction, induction, etc., and on the logical history of the principle of natural selection. Each topic is discussed in the light of a number of examples, all of them labelled with page, volume and edition of the original works. The reader does not get, as indeed he should not expect, any very deep insight into the nature of logical processes; but he gets what is sound exposition, so far as it goes, presented in an extremely interesting way.

*A Compendium of Insanity.* By J. B. CHAPIN. Philadelphia: W. B Saunders, 1898. Pp. 234.

Dr. Chapin has compiled a useful practical manual of insanity for the assistance of physicians and medical students. He devotes most

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of his space to a description of idiocy and imbecility, and of the four great types of positive insanity—mania, melancholia, dementia and general paresis; though epilepsy and the shock psychoses receive some notice. The difficulty and importance of a good working definition of insanity are well brought out, and plain directions given as regards the granting of certificates, the action of the expert in the courts and the detection of feigned insanity. An especially noteworthy feature of the book is the chapter on morbid anatomy, written in co-operation with Dr. M. Mosher.

Signs of haste are too evident in the work: witness the printing of identical paragraphs on pp. 193 and 209. The psychology of the Introduction is antiquated, but its statements are replaced by more modern conceptions in the body of the treatise. The book that shall base a discussion of insanity upon the established facts of the 'new' psychology is yet to be written.

*Social and Ethical Interpretations in Mental Development.* By JAMES MARK BALDWIN, Professor in Princeton University. New York: The Macmillan Co., 1897. Pp. xiv., 574.

This Study in Social Psychology is an important contribution to the literature which is accumulating concerning the relation of the individual to society. Prof. Baldwin follows the French school in laying much stress upon imitation as the fundamental process by which the social consciousness arises; and he describes at length the way in which the child enters into the social consciousness by what he also calls the process of social heredity. The part played by invention in social progress, the possibility of the genius in a world maintained by imitation, the sentiments and sanctions of the individual and the "matter of social organisation," are some of the subjects dealt with in this book. Full notice will follow.

*L'Évolution des idées générales.* Par TH. RIBOT, professeur au Collège de France, directeur de la *Revue Philosophique.* Paris: Félix Alcan. Pp. 260.

It is M. Ribot's intention to publish a series of treatises on various branches of psychology. This book, which is a summary of lectures given at the Collège de France in 1895, is the first of the proposed series, and deals with the processes of abstraction and generalisation. M. Ribot traces the development of general ideas in (1) animals, children and deaf mutes, (2) primitive races, (3) scientific theory and classification. This division corresponds to three stages: (1) the stage previous to language, (2) that at which ideas are accompanied by words and the importance of language gradually increases, (3) that at which the substitution of words for ideas is complete. There are, accordingly, two elements in conceptual thought: the conscious element, which is language with or without mental images, and the obscure, unconscious element, without which the process of symbolic thought would be entirely mechanical. A notice will follow.

E. F. STEVENSON.

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*Le Rationnel; Études complémentaires à L'Essai sur la Certitude Logique.* Par GASTON MILHAUD, Agrégé de Mathématiques, Docteur ès lettres, Chargé de cours de philosophie à l'Université de Montpellier. Paris: Félix Alcan, 1898. Pp. 179.

The object of the group of studies collected in this small volume is to inquire into the nature of the logical or rational factor which (according to Dr. Milhaud) grows ever more and more prominent in human knowledge. "Can the distinction between this rational factor and that which is merely empirical, between clear and intelligible ideas on the one hand, and facts as presented to perception in all their complexity on the other hand,—can this be ultimately reduced to the simple distinction between abstract and concrete? Is there a difference of degree only, among the mental processes which extend from the point at which the mind first apprehends the impressions presented to it, from the simple reception of the given data, to the most lofty conceptions of speculative science? In this labour, which engrosses thought, has the mind an active and unique *rôle*—does it show some measure of spontaneity,—or does it simply disentangle, from a reality which dominates it, the intelligible notions by means of which that reality is known? Up to what point does the stamp of this rationality extend? What is the sense in which reasoned thought represents the things which reason helps to render comprehensible? and within what limits is it itself determined by those things? . . . These are the questions which, in one form or another, I ask on every page. It is unnecessary to say that I make no pretension to have solved them. My only demand is, that, in seeking a theory of rational knowledge, more account should be taken than usually is, of a spontaneous activity of mind, and that we should not be afraid of going so far as to recognise in this creative activity some degree of contingency and indeterminateness" (*Le Rationnel*, pp. 2, 3).

The six studies of which this book consists are described by Dr. Milhaud as complementary to his *Essai sur la Certitude Logique* published in 1894, and noticed in MIND for July of that year. The general position of the author, as indicated in the Essay, appears unmodified in *Le Rationnel*—he still draws the sharpest distinction between reason and reality, thought and thing, and explains the special character of mathematics—which from its logical certainty is the ideal of science—by the theory that mathematics is in a peculiar sense the construction of the mind, the work of pure thought, and that it transcends in a unique way the data given in experience.

The dualism of M. Milhaud's view seems to me to be somewhat crude and exaggerated, and the explanation of the peculiar character of mathematics to be essentially different from that here set forth. We may indeed acquire the power of carrying on mathematical thought without the presence of concrete objects, or visible symbols and figures; the lines or circles with which we work may be merely 'subjective,' 'rational,' merely *thought of* and not actually seen; and moreover thought of as absolutely straight, perfectly circular and so on; while the lines and circles which we draw and measure are found by the application of delicate instruments to be *not* perfectly straight or round. But what of that? The circles and triangles which ornament, *e.g.*, the pages of Euclid's *Elements*, are, *to our perception*, perfect examples of triangles and circles, and our thought-images are copies or counterparts of those seen, *as they appeared to us*. By reasoning similar to that which is used to show that none of the actual figures which we see and use in mathematical demonstrations are perfect, it might be shown that light and sound are only undulations, white light really parti-coloured, and so on.

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But in spite of some general disagreement, a great deal of the detail of Dr. Milhaud's studies seems to me sound and excellent, and his views are set forth with all the attraction of lucid exposition and charming and polished style. His book is genuinely interesting—I found the sixth study (*Le raisonnement géométrique et le syllogisme*) particularly so—and his general view of the relation between geometrical reasoning and the syllogism seems to me admirable. He might however with advantage have taken a somewhat wider view of deductive mediate reasoning, and also have indicated the characteristic difference between equational (relative) and ordinary syllogisms. And as to the question whether knowledge can be added to by syllogistic reasoning, I think the difficulty is, to show that in passing *from the premisses taken together* to the conclusion there is *some* movement of thought, that there is *something* new in the conclusion. This it would have been easy for M. Milhaud to show in accordance with his general conception of the movement of thought in mediate reasoning. The point on which he insists—that new connexions are found and new knowledge gained *by bringing together two premisses not previously thought of in conjunction* —could hardly be matter of question. And I must remark that his conclusion (in accord with his general doctrine) that "we must do without a *logical* justification of syllogism," and that "the problem is essentially subjective," seems to me as mistaken as it is unsatisfying. This, and his discussion of the "Principle of Identity," might be amended by reference to the double force of terms as 'intensional' and 'extensional'.

The thesis of the first study (*Mathématique et philosophie*) is the part which scientific (mathematical) thought has played in the formation and evolution of philosophic doctrine; the second (*La science rationnelle*) examines in detail, and by the aid of numerous examples, the function of thought, theory, or hypothesis in science, beginning with laws commonly enounced as laws of the connexion of *facts*, and going on by degrees to what are recognised as scientific hypotheses. In the third study (*A propos de la géométrie grecque: une condition du progrès scientifique*) Dr. Milhaud insists that true science is speculative and disinterested, and that this disinterestedness, this detachment from practical utility, is the condition of scientific progress. The remaining studies are a note on Greek Geometry, and a dialogue on the notion of Limit in Mathematics.

E. E. C. J.

*Dürfen wir den Ameisen und Bienen psychische Qualitäten zuschreiben?* Von Albrecht Bethe. In *Pflüger's Archiv f. d. ges. Physiologie*, vol. lxx., Nos. 1 and 2. Bonn, 1898. Pp. 86, with 5 figures in the text and 2 plates.

This is a very important—negative—contribution to animal psychology. Briefly stated, the author's thesis is that psychical life takes its origin with the vertebrate series; that the invertebrates are endowed with no sensations, accumulate no experiences, and therefore show no modification of action; that they are, in a word, automata, reacting mechanically to stimuli which never pass the limen of sense perception. The essay contains an introduction and two chapters, dealing respectively with the behaviour of ants and bees.

The introduction falls into two parts. The first is critical and methodological. Wundt is taken to task for not following his own rule of simplest explanation; Haeckel and von Hartmann for neglecting facts

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in their leap towards monism; Romanes for credulity; Weismann for his definition of instinct. The criterion of mentality is capacity to learn, to modify action—and, more than that, so to modify action that it becomes qualitatively distinct from the connate actions reflexly released by their adequate stimuli. The second part sketches the development of the reflex as determined by germinal variation (Weismann) and natural selection. These principles enable us to account for differences of internal organs and organic functions as well as of outward form; indeed, germinal variation allows of the "origination of the qualitatively new in the chemical economy of the individual". Passing then to a concrete illustration, the writer shows that there exist, within the cognisance of man's sense of smell, generic, specific, family and individual odours, so that one can identify a ruminant, a horse, the members of a given family, and even particular persons, by scent alone. This fact suggests that a volatile chemical substance may play a very considerable part, as the stimulus to reflex movements, in the life of the lower animals.

The chapter on ants opens with a careful experimental investigation of the question whether the members of a formicary recognise or 'know' one another. The conclusion is reached that each nest has its own 'nest-substance,' a volatile chemical substance (mixture of fatty acids?), alike or nearly alike for all members of the nest, and produced by the individual insect. The reaction to 'familiar' and 'unfamiliar' nest-substances is connate, not acquired. A similar inquiry into the mechanism of 'homing' shows that ants leave upon their path a volatile chemical slot, which is polarised, *i.e.*, differs according as the insect is travelling to or from the nest. The slot is 'received' through the antennæ, and releases the 'to' or 'from' movements reflexly. Finally, differential experiments prove that ants possess no means of 'communication'. Indeed, there is no evidence whatsoever of any modification of action that would justify our ascribing mentality to them.

Bees do not recognise the members of the hive, any more than ants the members of the ant-heap. Each hive has its 'nest-substance,' individually produced, and the treatment of 'friends' and 'foes' is a simple chemo-reflex, connate and founded on germinal variation. The homing of bees is a more difficult matter. It can be shown that neither the nest-substance of the hive, nor the slot of the insects in the air, is the chief determinant of the course of flight. Three hypotheses remain: that of memory, that of influence by terrestrial magnetism, and that of nervous registration of movement (orientation mechanism). None of these will 'work'; acoustic, magnetic, chemical and optical stimuli, as well as memory images, fail to yield an explanation of the facts. The author decides that 'a wholly unknown force' is operative in the case. It impels the bees to return to the point in space (not necessarily the hive) from which they set out, and is effective over a circular area of some 3 or 4 km. radius. But neither the fact of homing, nor any other fact in the bee life, constrains us to posit an insect mind.

Dr. Bethe's experiments, of which no description can be given in a brief notice of his essay, are admirably conducted; I know of none that surpass and of few that equal them in this field. His record of procedure is also full and careful, so that they can easily be repeated. His conclusion that none of the results furnish a proof of the presence of mental processes—a conclusion that is cautiously formulated, though the writer's personal belief plainly far outruns it—can hardly be denied. There are, however, several points in the two chapters that need further investigation; notably certain of the 'polarisation' phenomena of chap. i., and the nature of the *uns gänzlich unbekannte Kraft* of chap. ii.

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In his reasoning on general principles the author is less happy. His criticism of Wundt, from the standpoint of a theory of the reflex which Wundt (and with him, probably, the majority of experimental psychologists) would not for a moment accept, may even be characterised as naïve. The strength of the paper lies partly in the rigour of its method, partly in the evidence which it brings of a reaction towards automatism as the explanation of a great body of animal actions. In the latter regard it may be compared with Prof. Loeb's article on instinct, published in the July, 1897, number of the *Monist*.

E. B. TITCHENER.

*Die Ethik der alten Stoa*, untersucht von Dr. ADOLF DYROFF. (Berliner Studien für Classische Philologie und Archaeologie.) Calvary & Co., Berlin, 1897. Pp. xvi., 410.

Dr. Dyroff deserves the thanks of every student of ancient philosophy for this admirable account of the ethical teaching of earlier Stoicism. It is by far the most complete and scholarly work upon the subject which we have seen, and forms a welcome supplement and companion to Pearson's well-known collection of *The Fragments of Zeno and Cleanthes* (1891). After a short introduction containing a general view of the leading characteristics of Stoic ethical theory, Dr. Dyroff proceeds to expound "die allgemeine Ethik" according to the sequence of topics observed by the founders of the Stoic school. Impulse (*ὁρμή*), the Ethical End (*τέλος*), Goods, Evils, and Intermediates (*ἀγαθά, κακά, οὐδέτερα*), Actions (*πράξεις*), and Emotions (*πάθη*) are exhaustively discussed. The third chapter (pp. 181-314) treats of various questions of practical or "hortatory" ethics, in particular of the Stoic attitude to politics, law, government and education. In a concluding chapter (pp. 315-837), the author determines the historical position of earlier Stoic teaching, laying stress, as has often been done before, on the influence of Oriental thought in determining the tone, though not the content, of the system. A few paragraphs are added on the relation of Stoicism to Christianity. Finally, we have a number of Appendices, in which many points of interest are further elucidated, such as the relation of the Porch to earlier schools, the position of Aristo of Chios, and Stoic views on Providence. The work ends with excellent indices, and a table of contents.

Dr. Dyroff's exposition is always clear, concise, and forcible. He has a thorough knowledge, not merely of the ancient sources, but of all the most important contributions to the history of Stoic ethics in recent times. His two outstanding merits are, as it appears to us, a remarkable faculty of seizing and describing the historical evolution of dogma, and a singularly acute and sound scholarship. The latter feature is all the more welcome, because it is by no means universal among German writers on ancient philosophy. As examples we may cite the author's attempt to prove that the pseudo-Plutarch's tractate on Education is based upon a work by Chrysippus (pp. 238 ff.). Here and there, we think, Dr. Dyroff presses his argument too far. Thus on p. 267 he finds an indication of Chrysippus in the following words of pseudo-Plutarch (3 *e*): *ὥσπερ γὰρ τὰ μέλη τοῦ σώματος εὐθὺς ἀπὸ γενέσεως πλάττειν τῶν τέκνων ἀναγκαῖόν ἐστιν, ἵνα ταῦτ' ὀρθὰ καὶ ἀστραβῆ φύηται, τὸν αὐτὸν τρόπον ἐξ ἀρχῆς τὰ τῶν τέκνων ἤθη ῥυθμίζειν προσήκει.* The same illustration was no doubt used by Chrysippus, but to us the passage forcibly recalls the words of Plato (*Rep.*, ii., 377 *c*): *πλάττειν τὰς ψυχὰς αὐτῶν τοῖς μύθοις πολὺ μᾶλλον ἢ τὰ σώματα ταῖς χερσίν.* The author of the treatise ascribed to Plutarch may well have derived the simile from Plato direct. But in general Dr.

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Dyroff's reasoning is eminently sober and judicious. As examples of his excellent scholarship, we may refer to pp. 31 and 34, where *ὁμολογουμένως ζῆν* is shown to contain an etymological play (*ὁμο-λόγου-μένως*), by reference to the gloss in Stobæus: *τοῦτο δ' ἐστὶ καθ' ἕνα λόγον καὶ συμφώνως ζῆν ὡς τῶν μαχομένως ζώντων κακοδαιμονούντων.* The author's observations on Stoic etymologising (pp. 92 ff.) are remarkably acute and interesting. So likewise is his account of the process known as *μεταγράφειν* or *ἐπανορθοῦσθαι*—the emendation of well-known verses and quotations in order to communicate a moral lesson; as, for example, when the epitaph on Sardanapalus,

*κεῖν' ἔχω ὅσσ' ἔφαγον καὶ ἐφύβρισα καὶ σὺν ἔρωτι*
*τέρπν' ἔπαθον· τὰ δὲ πολλὰ καὶ ὄλβια πάντα λέλυνται* (? *λέλειπται*),

became in the hands of Crates,

*ταῦτ' ἔχω ὅσσ' ἔμαθον καὶ ἐφρόντισα καὶ μετὰ Μουσῶν*
*σέμν' ἐδάην· τὰ δὲ πολλὰ καὶ ὄλβια τῦφος ἔμαρψε.*

We have said enough to indicate the scope and character of Dr. Dyroff's work. The whole volume is full of interest to students of philology as well as of philosophy, and deserves the attention of all who are interested in the history of ethical theory and dogma.

J. ADAM.

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J. Royce, *Studies of Good and Evil*, New York, D. Appleton & Co., 1898, pp. xv., 384.

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# VIII.—PHILOSOPHICAL PERIODICALS.

PHILOSOPHICAL REVIEW. Vol. vii., No. 2. **J. Watson.** 'The Metaphysic of Aristotle.—II.' [For Aristotle, "the first principles of knowledge as well as those of reality belong to metaphysics, since apart from them there can be no knowledge of any reality". The process of knowledge is "a gradual ascent to first principles in which the ultimate presuppositions of all knowledge and reality at last come to direct consciousness". Metaphysics is thus a systematic exposition of the forms of intelligence itself. By the principle of contradiction Aristotle means to show that "the unity of intelligence with itself in conception, and the substantial reality and distinction of things, stand and fall together". (Criticism of Heraclitus and Protagoras.) By that of excluded middle he shows that "thought can grasp the real only if it comprehends the combination or separation of its elements, and that there cannot be anything real in which there is no such combination and separation". (Criticism of Anaxagoras.)] **J. G. Schurman.** 'The Genesis of the Critical Philosophy.—II. Psychological.' [Kant reached the standpoint of criticism by way of dogmatism (1746-60) and scepticism (1760-69). In the first period he still stands in the school of Leibniz and Wolff, and till 1755 is mainly occupied with physical science. The apostasy from Wolff results from the discoveries of 1761-66, that logical thought is analytic, that existence is no predicate of a thing, that causality is inexplicable to reason and (if not illusory) must be accepted from experience, that the methods of metaphysics and mathematics are wholly unlike, and that there is no knowledge of the suprasensible, metaphysics finding its chance of survival only as theory of the limits of human knowledge. Much as this table of conclusions simulates Hume's position in the Inquiry, Kant reached his standpoint independently, and is still not free from rationalism. The 'new method' (mentioned in 1765, dating really at least from 1762) is the obverse of the mediation of dogmatism: "there the procedure was to find identity amid differences, here it is to develop differences out of identity". The antinomy of pure reason forced Kant to a critique of reason itself: this is the *Umkippung* of 1769.] **H. Davies.** 'The Psychology of Temperament and its Epistemological Applications.' [The facts: temperaments in infancy and in mature life, special (artistic, critical, etc.), racial and class temperaments. The problem: physiological basis is to be sought in habit, psychological explanation runs in terms of attention, interest, individual variation. Temperaments, then, are referable, "on the one hand, to the ever-varying results wrought out in the body and due to some principle of heredity in transmission; and, on the other, to the functional activity of the individual, habitually reacting in attention and interest, on occasion of the stimulus of the environment, in harmony with a principle of unity". Epistemological bearings: Croom Robertson on heredity, influence of mood on activity of knowledge, the social factor in knowledge, feeling and theory of perception, knowledge as "the peculiar possession and development of the bents of feeling and temperament of the individual, subject to a teleological principle".—A thin paper.] Reviews of Books. Summaries of Articles. Notices of New Books. Notes.

PSYCHOLOGICAL REVIEW. Vol. v., No. 2. **J. Royce.** 'The Psychology of Invention.' [Subjects were required (1) to draw ten figures, not

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imitative, as quickly as possible; (2) to draw ten original designs deliberately; (3) to draw quickly, at sight of ten figures, figures as unlike these as possible; and (4) to repeat this last series, but deliberately and comparatively. The effects of the 'social stimulation' in (3) led to the distinction of types, the self-preservative and the receptive. Upon the latter the intruding stimulus works in three ways: it produces a general tendency to vary; it induces a cautious and critical attitude, and so inhibits variation; it leads to a blending of the old style with the new, to true invention. The results show in miniature that "the social situation of the sort prevalent in an individualistic community involves altogether three kinds of motive," that to variation, that to selection, and that to the combination of the two.] **L. Farrand.** 'Proceedings of the Sixth Annual Meeting of the American Psychological Association, Ithaca, N.Y., December, 1897.' Discussion and reports. **J. Jastrow, J. M. Baldwin, J. M'K. Cattell.** 'Physical and Mental Tests.' [Aim is "to establish the normal capacity of simple and typical sensory, motor and intellectual endowments, as they occur in the average individual or in specially selected groups". Three problems: senses (sensitivity and sensible discrimination), motor capacities, complex processes (Jastrow). Investigation of memory is important (Baldwin). Report of committee and general criticism (Cattell).] **J. R. Angell.** 'Habit and Attention.' ["The reaction experiment represents an act in which are united two subordinate groups of habitual co-ordinations, one at the sensory end of the arc and one at the motor end." "The function of attention will be found at that point where the various co-ordinations comprised in the total sensation-and-movement act are least thoroughly habitual." The co-ordinations are thus susceptible to "the same kind of training which characterises all growth in habit".] **H. Davies.** 'The Trans-subjective as Psychological Fact.' [For Ladd against Miller.] **W. J.** 'Consciousness under Nitrous Oxide.' [Report of case by a philosophical student.] Psychological Literature. New Books. Notes.

Revue Philosophique. April, 1898. **Ch. Richet.** 'La forme et la durée de la vibration nerveuse et l'unité psychologique du temps.' [In the course of experimentation on dogs the writer was led to observe that each member of a uniform series of electric or other shocks is followed by uniform muscular response only if there is a certain minimum interval of time between each one. Response to a shock, that is to say, is followed by a 'période refractaire,' during which the nervous system is incapable of responding to stimuli. The facts observed can but be explained if we assume that in the response of the nervous system to stimulus we have a case of molecular vibration, and the author concludes that the time taken by the vibration and the return of the system to equilibrium is identical with the psychological unit of time.] **Winiarski.** 'Essai sur la mécanique sociale.' [I. Theory of economic and social equilibrium. II. Transformations of social energy. III. Social dynamics.] **G. Dumas.** 'L'état mentale d'Auguste Comte (conclusion).' Analyses et comptes rendus. Revue.

May, 1898. **Dunan.** 'La philosophie spiritualiste.' [Underlying all philosophies is one universal philosophy which is necessarily true and the content of which, though to a certain extent indeterminate, is expressed in the dogmas of the sanctity and inviolability of justice, the spirituality, liberty and immortality of the human soul and the existence of a powerful, good and wise God. Spiritualism (in this sense) is a form of instinct, which is defined as a natural disposition of all beings to exercise their functions and to accomplish those acts by means of which they can realise themselves. Since it is a function of the human mind

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to understand as well as to believe efforts to systematise these ideas must always be made, and though every system must be imperfect, owing to the inherent limitations of human nature, yet philosophic speculation is not a game but an exercise of the highest and most human of our faculties, *i.e.*, reflexion.] **Martin (Abbé T.).** 'L'illusion des philosophes.' [Consisting in the fallacy of supposing that a philosopher's consciousness consists of two independent energies, one of which constructs or perceives the system he expounds, which the other can examine and judge disinterestedly.] **Calerion.** 'Sur la définition des grandeurs.' [Observations and documents.] **Dugas.** 'A case of depersonalisation.' Analyses et comptes rendus. Revue.

June, 1898. **Dr. E. Fardieu.** 'Psychologie du malade.' [Illness is a psychological leveller. It produces a distinct type of its own.] **R. de la Grassein.** 'La catégorie psychologique de la classification, révélée par le langage.' [Classification is concrete or abstract. The different abstract classifications are as follows: (1) *vitaliste* (animate or inanimate); (2) *rationaliste* (with or without reason); (3) *hoministe* (human or non-human); (4) *viriliste* (human male or other beings); (5) *intensiviste* (strong or weak); (6) *gradualiste* (diminutive or augmentative); (7) *masculiniste* (male or any other being); (8) *sexualiste* (male, female or asexual).] **Sikorsby.** 'Quelques traits de la psychologie des slaves.' Observations and documents. 'Memory in dreams.' Analyses et comptes rendus. Revue.

Revue de Métaphysique et de Morale. 6e Année, No. 2. March, 1898. **J. Lagneau.** 'Fragments.' [These fragments are prefaced with a letter which clearly sets forth what Spinoza means in the proposition that '*the body is the soul viewed on the side of extension*, and the soul on its part *is the idea of the body*'; a proposition which of course makes short work of the reality of purposiveness, as well as of personality; reducing them, even in ourselves, to little better than an illusion, persistent for all except Spinozistic philosophers. Spinoza's meaning is well expressed: and there is, besides, much independent thinking on Spinoza's lines, conducted in the light of subsequent philosophy. The writer (E. Chartier) promises to publish hereafter a commentary for the guidance of students: meanwhile he presents the 'Fragments' in a disjointed and unsystematised form. We must observe that in his prefatory letter Lagneau declares that Spinozism is true only in a limited sense, to be afterwards explained.] **Jacob.** 'La philosophie d'hier et celle d'aujourd'hui.' [The writer argues that the older philosophy, whose tendency to disappearance he regrets, promised better than its successor for the cultivation of the human mind and the attainment of truth. The older philosophy was, to some extent, still under the influence of the schools: it still employed the venerable conceptions of substance, of genera and species, and of 'final causes'. The newer is that of Bain, Mill, Spencer—the English thinkers and their French disciples. An interesting discussion follows, in which the weaknesses of the 'newer philosophy' are examined and exposed. This newer philosophy represents no real progress, but only a retrograde movement. It destroys, and does not create.] **G. Tarde.** 'Les lois sociales' (*suite*). [This follows up the article of January last, already noticed. Progress in the sciences generally has largely consisted in displacing a few empty and superficial, but strongly marked, conceptions of oppositions in nature, such as those of day-night, heaven-earth (in astronomy); fire-water, earth-air (in physics); health-sickness, and so on; and substituting for them a countless number of subtle and profound oppositions, discovered after painful research: replacing external and

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apparent by internal and real distinctions. In Sociology the case is analogous. National oppositions (especially since the recent 'Europeanisation' of Japan) are no longer made so much of as they used to be by (*e.g.*) Plato, Hegel, Cousin, etc. Economists no longer treat wars as the key to history: the true key is to be found in the competition of desires and beliefs—the true forms or elements of rivalry and opposition to be sought for in the bosom of the social individual. But the 'opposition-struggle,' in its various phases, plays only the part of a 'middle term' in the development of humanity, and is destined to disappear finally, after founding a better state of things. It is, after all, only a means towards the 'adaptation of man to his environment']. Etudes Critiques, etc.

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Bd. xvi., Heft 4. **R. Wahle.** 'Ueber den gegenwärtigen Zustand der Psychologie.' [Critique of three typical books (Jodl, Wundt, Ebbinghaus) on the ground of their underlying ontology. Jodl misuses the concept of consciousness, in making it a 'unity' within which 'elements' or 'moments' are distinguishable; he goes astray also in his doctrine of the antithesis of subject and object as characteristic of consciousness, in his notion of the elementary ego-form, in his identification of act, excitation, function, phenomenon, activity. There is no 'relating' of sensation to brain disturbance; the two occurrences are of precisely the same order. Wundt is not clear about the primary will process, and self-contradictory as regards the feelings. The concept of fusion is unscientific. Ebbinghaus has begun well; but may go wrong upon feeling and 'combination' later.] **Guillery.** 'Bemerkungen über Raum und Lichtsinn.' [Reply to Asher. Discusses the like and unlike conditions of the 'light sense' and the 'space sense' of the eye.] **R. Sommer.** 'Dreidimensionale Analyse von Ausdrucksbewegungen.' [Description of apparatus for recording hand-movements in the three planes of space. Useful for normal work (fatigue, etc.), for differentiating tremors (alcoholic, hysteric, paralytic), for the psychophysiology of 'thought reading,' etc. Record of experiments.] **J. Loeb.** 'Ueber Kontrasterscheinungen in Gebiete der Raumempfindungen.' [Defence of concept of space contrast, against Lipps.] Litteraturbericht.

Bd. xvi., Heft 5 und 6. **J. Hirschberg.** 'Die Optik der alten Griechen.' [The rectilineal propagation of light was understood, and its linear perspective given a correct geometrical exposition. The law of reflexion was known; the images of spherical mirrors presented difficulties. Good experiments on refraction were made, but the law did not attain mathematical formulation. As for physiological optics: fixation point and extension of the field of vision were familiar concepts. The law of binocular (single and double) vision was approximately known. Observations were made, and explanations attempted, of optical illusions.] **M. Meyer.** 'Ueber die Unterschiedsempfindlichkeit für Tonhöhen, nebst einigen Bemerkungen über die Methode der Minimaländerungen.' [Method of r. and w. cases: collective experiments with the tone 600, experiments on Stumpf with the tones 100, 200, 400, 600, 1200. Luft's results are approximately confirmed. (The method of work is excellent.) The judgment of 'difference,' without statement of direction, depends on secondary, *i.e.*, non-qualitative criteria. The method of minimal changes is unreliable: it is full of suggestion to the subject, and the course of the expectation-error cannot be predicted. (The criticism is written in an arrogant and polemical tone; and, moreover, does not take account of some of Wundt's rules for the use of the method.)] **W. A. Nagel.** 'Ueber das Aubertsche Phänomen und verwandte Täuschungen über die vertikale Richtung.' [If a vertical line of light be observed in the dark

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room with the head inclined to the shoulder, it takes on a distinctly oblique position. Repetition and variation of this experiment: illusions of movement: experiments with passage of a constant current through the occiput. Theory: the compensatory torsions, useful in animals, are in man a useless and more or less vestigial reflex. They are probably concerned in the phenomenon under discussion; *cf.* Exner's autokinetic sensations. The *rôle* of the static sense is uncertain.] Besprechungen. [Lipps on Stout's *Analytic Psychology*, Lange on Helwig's *Theorie des Schönen*, Hoefler on von Stein's *Aesthetik*.] Litteraturbericht.

Bd. xvii., Heft 1 und 2. **M. Meyer.** 'Ueber die Intensitaet der Einzeltoene zusammengesetzter Klaenge.' [Mathematical formulation, with empirical verification, on the lines of the author's theory of hearing sketched in the preceding volume. An appendix figures a working model of wave-analysis by the cochlea according to the same theory.] **W. Filehne.** 'Die geometrisch-optischen Taeuschungen als Nachwirkungen der im koerperlichen Sehen erwerbenen Erfahrung.' [Normal vision is spatial vision. Illusions are due to (often subliminal) spatial associations; the figures contain 'perspective motives'. Analysis of Zoellner's figure, angle illusions, the Milton-Bradley (shifted chessboard) illusion, Loeb's illusion. Motives of perspective and of movement. An interesting paper, whose figures are especially valuable. The question of optical illusions is now on the way towards settlement. It is noteworthy that Filehne has worked independently of Einthoven and Wundt; Einthoven independently of Wundt; Wundt independently of Lipps.] **G. Heymans.** 'Zur Parallelismusfrage.' [Most opponents of the monistic 'two-side' theory have interpreted it as a form of the Spinozistic doctrine of substance and attribute. Over against this the author sets a parallelistic monism, which may be briefly formulated as follows: All reals (primary series) are psychical in nature. The only given reals are our conscious processes: the rest are gained by interpolation and extrapolation in kind. The indirect effects of reals on consciousness, effects produced under the conditions of perception, are the phenomena dealt with by natural science (secondary series). Both series are necessarily parallel, and form closed causal chains. Both are, evidently, psychical in nature, differing not in contents but in laws of succession. Critique of materialism and dualism, and comparison of them with this monism. Review of eight objections to the theory (Wentscher, Kroman, Erhardt, Hoefler). A clear paper. It should be remembered that a parallelistic monism need not be a psychical monism (this the writer points out); and that the interpretation of parallelism is but one out of many possible.] **F. Schumann.** 'Zur Psychologie der Zeitanschauung.' [Introduction to a promised series of experimental articles. Mueller's general theory of time perception. The verdict of introspection: form-qualities, comparing activity, inclusiveness of judgment, simultaneity of elements in consciousness, are needless. Critique of Stern (psychical present), Meinong and Witasek (consolidated contents), Wundt and Meumann. Result: direct temporal perception must be analysed as contents followed by judgment-formula—the contents, given in time relations, form a unitary whole, in the sense that they influence as a whole the course of association, feeling and judgment.] Litteraturbericht.

PHILOSOPHISCHE STUDIEN. Bd. xiii., Heft 4. **P. Mentz.** 'Untersuchungen zur Psychophysik der Farbenempfindungen am Spectrum, i.' [First part of what promises to be a very thorough and valuable investigation. Discusses the three variables, colour-tone, colour-degree, brightness-degree, in their connexion with language, and shows the

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need and manner of their independent variation; describes the spectrometric apparatus employed; and gives eighty-eight values of the difference limen between the limits 773,994 and 896,862 $\mu\mu$ of an objective spectrum.] **G. F. Lipps.** 'Ueber Fechner's Collectivmaasslehre und die Vertheilungsgesetze der Collectivgegenstaende.' [Brief analysis, by the editor, of Fechner's posthumous work. The scientific advance in the book is the recognition of the interrelations of the theory of error and the theory of collective measurement. The fundamental problem of both theories is the development of a law of distribution that is approximately valid for a given collective object.] **G. Heymans.** 'Berichtigung.' [Correction of Wundt's account of his 'contrast-theory' of certain optical illusions. If we set out along a horizontal line from the acute angle formed by an inturned oblique piece, our attention is diverted by the latter: the length of the line is therefore shortened (Müller-Lyer), and the line itself appears to fall slightly from beginning to end (Zöllner).] **W. Wundt.** 'Bemerkungen zu vorstehender Berichtigung.' [Heymans is wrong in applying the illusions of movement (after-image, positive and negative) to a resting line, and in his idea of contrast, which is always a phenomenon of relation.]

Bd. xiv., Heft 1. **W. Wundt.** 'Zur Theorie der räumlichen Gesichtswahrnehmungen.' [A very important paper, whose object is the revision of current theories of visual space perception and of the facts upon which they rest. Acquaintance with the author's recent work on the geometrical optical illusions (*Abh. d. kgl. sächs. Ges. d. Wiss., math.-phys. Cl.*, xxiv., 2) is assumed throughout. (1) Wundt's ten years' experience of metamorphopsia points to the correctness of the genetic theory of space perception. The retina has the power of gradual adaptation to constant distortions of its image. (2) The work of Hillebrand and Arrer. The sensations accompanying convergence are not merely muscular sensations, in the strict sense of the word; they are muscular and tendinous sensations, plus the pseudo-articular sensations set up by rotation of the eye-ball in the orbit. They are not perceived as such, with small excursion, simply because they fuse to a whole, with other sense-elements, in perception: *cf.* Goldscheider's work on minimal, active and passive, arm-movements. (3) Geometrical optical illusions fall into four classes. The first is that of the reversible illusions of perspective,—illusions of great value, since in them the objective conditions of spatial form remain constant, and the perceptual variation must be due to the perceiving subject. An elaborate analysis (which cannot here be summarised) reduces the conditions of variation to position and movement of the eyes. The illusions serve well to illustrate the mechanics of the assimilation. Next in order come the variable illusions of distance and direction, with unequivocal secondary ideas of perspective. These are shown to depend upon the uniform interaction of retinal image and 'movement image'; the three laws of illusion can be directly deduced from three laws of eye-movement. In the third place stand the constant illusions of distance and direction, illusions that do not vary with variation of conditions. They are due to motor defects (*cf.* the dioptrical) of the visual apparatus. Lastly we have the associative illusions of approximation and contrast. They result from the mutual relations of perceptual contents, thus differing from the other three classes, whose illusions appear in the single perception. (4) The antithesis of nativism and empirism in its historical significance. Hering's nativistic theory posits three factors in space perception: a nativistic anatomical correlation of the two retinæ, a nativistic function of will or attention, and an empiristic 'experience'. The two first assumptions are evidently open to criticism,

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and the second leads further to a onesidedly sensory view of the process of space perception in general. (5) Helmholtz' empiristic theory uses the three motives of touch, innervation-feelings round the eye, and retinal local signs. It fails, as every theory grounded on Lockian principles must fail, to get its space out of non-spatial contents. (6) There remains the genetic theory, or theory of complex local signs. This has, as its tools, a two-dimensional system of retinal local signs, and the one-dimensional of 'muscle' sensations. "The strain sensations of the eye, forming a continuum of one dimension, fuse associatively with the system of retinal local signs, a heterogeneous continuum of two dimensions, to produce a homogeneous continuum of two dimensions, *i.e.*, a space-superficies." The third dimension is given by the fact of binocular function; absolute orientation in space by reference to the body of the perceiving subject.—The net result of the paper is a very considerable strengthening of the genetic position. The observations on metamorphopsia are extremely noteworthy, in view of the part played by pathology in recent modifications of the nativistic theory. The new experiments on convergence have elicited a clear and convincing statement on the question of eye-movement sensations from the author of the 'eye-movement theory'. The mechanism of simultaneous association is laid bare, with the result of a solid gain to analytic psychology. Optical illusions are reduced to order. And the theory of complex local signs has received its definitive formulation.] **R. Richter.** 'Der Willensbegriff in der Lehre Spinoza's.' [I. The place of will in nature. (*a*) Nature as *naturans*.—The will of pt. i. of the Ethics covers both affirmation and desire. Metaphysical and logical proofs from the side of the idea of God, and systematic proofs from that of the idea of will, lead to the result that God is will-less. The test lies in the incorrectness of all ideas of end as referred to God. To maintain his position, Spinoza has to change the meaning of the attributes of omnipotence, creation and freedom; his idea of God is neither voluntaristic nor intellectual, but takes on a logical and causal colouring. (*b*) Nature as *naturata*.—It follows that will finds its place in the realm of modes, absolutely determined. It does not follow, though this is Spinoza's doctrine, that will is a finite (not, like understanding, both a finite and an infinite) mode. In the world of experience, idea has priority over will: the will in this case is will as desire. This principle, again, is not grounded on demonstration; set forth as axiom, it has led to the unproven substitution of part for whole, of idea for state of consciousness. Epistemology thus comes to stand for metaphysics.]

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Bd. xxii., Heft 2. **P. Barth.** 'Zum 100 Geburtstage Auguste Comte's.' [An interesting sketch of Comte's aims and achievements.] **Fr. Carstanjen.** 'Der Empiriokritizismus.' [Exposition of the psychology of Avenarius, with corrections of Wundt's statement.] Besprechungen, etc.

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. Bd. iv., Heft 2. **E. Koch.** 'R. Avenarius' Kritik der reinen Erfahrung.' [Expository.] **J. Zahlfleisch.** 'Ueber Analogie und Phantasie.' [Importance of imaginative construction guided by analogy in the development of science, art and religion.] **S. Stein.** 'Wesen und Aufgabe der Sociologie.' [Sociology in its present state must be content to discover empirical rules, not apodeictic laws. Protest against Spencerian deduction from supposed biological analogies.] **F. Tönnies.** 'Jahresbericht ueber Erscheinungen der Sociologie aus den Jahren 1895 und 1896.'

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RIVISTA ITALIANA DI FILOSOFIA. November-December. **F. de Sarlo.** 'Il Socialismo come Concezione Filosofica.' [It has been said that every one goes to the Bible to find his own opinions there, and so it seems to be to a large extent with Hegelianism. Certainly the Hegelian dialectic is here applied to the "conflict" between capital and labour, the higher unity being "Socialism, illumined or enlightened by the Hegelian Ethic". But if Socialism needs to be "illumined" obviously the dialectic moment is not necessary and internal, but external and artificial—apparently the same conflict might also find a higher unity, if not a remedy, in the wider distribution of profits and capital by further extensions of the system of Joint Stock Companies coupled with profit-sharing and bonuses. Besides if the "moment" is to be founded upon the thesis that capital is gradually working out its own extinction, through the profits on its use approaching the vanishing point, and if further this is exemplified by the fact that the *minimum* bank rate of discount in 1895 was only 2 per cent., one finds that, after all, the root of the Hegelian Dialectic was a temporary "glut of gold" in the city.] **B. Labanca.** 'La "Scienza Nuova" di Vico al lume della Bibbia in un raro libro del Seculo xviii.' **L. Ambrosi.** 'I Principi della bonoscenza e la loro prima Radice.' [A sequel to a former article entitled, "Le Creazioni dello Spirito Conoscenza Intellettiva". Mill's empirical account of Causality and the Uniformity of Nature is criticised as involving a vicious circle. Causality is necessary and involves the principles of Identity and Contradiction. Cognition ultimately results from intellectual activity, and the *momenta* may be summarised as follows: (*a*) We exist as cognitive; (*b*) something exists as cognised; (*c*) all things are intelligible, *i.e.*, there is objectivity, which is known. From these three principles result the three logical Laws—Space and Time (the first grade of the mental "hierarchy"); Substance and Cause (the second); and finally the principle of the Absolute (the third), *i.e.*, that the part presupposes the whole; the contingent the necessary, the imperfect the perfect, the finite the infinite, and the conditioned the unconditioned.] 'Seneca Filosofo e San Paolo.' [An elaborate account of Seneca's teachers and comparison of his opinions with those of St. Paul. (To be continued.)] **D. Grasso.** 'Studio sull' Attenzione.' [The opinions of Greek thinkers are omitted on account of their obscurity. The Cartesian and Scottish Schools are important as giving analyses of the *effects* of Attention (in treating of the latter it may be noted that the term "Scottish School" is confined to Reid and Stewart; if it were extended to include their followers, it would not be true that the "Scottish School" made attention a separate faculty). Wolff recorded the Phenomena, Condillac the Mechanism, Bonnet the Physiology, and Laromiguière the Genesis of Attention, and a detailed specification of these and other contributions to the subject shows how much more modern psychologists are indebted to earlier investigators.] Bollettino, etc.

## IX.—NOTE.

### ARISTOTELIAN SOCIETY.

The Nineteenth Session closed on 6th June. Prof. D. G. Ritchie was elected President in succession to Mr. Bernard Bosanquet, who retired. The new Session will open with the Presidential address on 4th November.

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NEW SERIES. No. 28.] [OCTOBER, 1898.

# MIND

## A QUARTERLY REVIEW

OF

## PSYCHOLOGY AND PHILOSOPHY.

### I.—THE ONE AND THE MANY.[1]

BY D. G. RITCHIE.

IN this paper it is not my purpose to give a new interpretation of Plato's *Parmenides*, but to do what is perhaps more audacious—to deal with the question itself which that great dialogue has treated in its most abstract form. Whether our ultimate theory of the Universe must be "Monism" or "Pluralism" or whether any reconciliation is possible between these opposite systems—this is the question on which we are always ultimately driven back, whatever be the special philosophical problem that we may have set out to investigate. The logical controversy about the nature of universal concepts, the cosmological controversy between the thorough-going evolutionist and the "special creationist" (or his more modern counterpart, the partial evolutionist), the controversy about free-will, whether in its theological or in its psychological aspects, questions about the nature of God and the nature of the human soul, nay, even political controversies about the relation between individual liberty and state action—all bring us ultimately back to the problem, whether the multiplicity of the world that confronts us is appearance or reality, and whether in any sense the One can be Many and the Many One. The discussions of Plato's *Parmenides* and *Sophistes* may seem at first sight barren of interest to the modern reader, who is keenly concerned about the freedom of the will or about the significance and rights of the individual person. But it was the peculiar advantage of Greek philosophy to be able to carry up controversies at once to the final court of appeal, *i.e.* to purely metaphysical

[1] Read before the Aristotelian Society.



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discussion in an atmosphere largely free from the bias of theological, ethical and political partisanship—largely free but not entirely, for there can be little doubt that it was through the application of Ionic and Italic philosophies to the criticism of popular religion and traditional maxims about conduct that epistemological and logical questions came into prominence. "How can we know anything?" suggests itself more easily, when the discussion affects opinion about the gods or about right and wrong, than when it deals with the more purely theoretical questions about the constitution of the physical universe. Still the Greek philosophers had only customary belief and not formulated dogmatic systems of theology to contend against or explain. John Stuart Mill has told us in his *Autobiography*[1] how his desire to defend empiricism and to provide it with an adequate system of logic was bound up with his active combatancy on behalf of "philosophical radicalism". The zeal for individual liberty in thought and in action was the main motive which induced him to attack that theory of knowledge which he regarded as the support of conservative prejudice in religion, ethics and politics; and it is quite true, that the reaction after the French Revolution against eighteenth-century free-thought was one of the chief sources of the interest in idealist metaphysics in its earlier stages. But it is best, if the logical question can be discussed without any immediate consideration of its bearing on popular beliefs or prejudices.

## I.—The Logical Problem.

John Stuart Mill's is the most thorough-going attempt to build up a theory of inference and of scientific knowledge upon the basis of an ultimate pluralism—the ultimate "many," whose existence is most certain and real, being for him "sensations". Mill's endeavour to get rid of identity comes out most clearly in his acceptance of "likeness" and "unlikeness" as ultimate categories incapable of further analysis (*Logic*, book i., ch. iii., § 11). According to Mill, there is no universal except the collective universal. The universal judgment is always, and can only be, a summation of particular instances, and its truth is dependent upon the truth of the particulars. On this turns Mill's whole theory of inference. In their ultimate reality all events are, as Hume said, "loose and separate". The unity we attribute

[1] Pp. 224-226, 271-275.

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to anything or to any person, the necessity we find in the causal nexus, the uniformity we presuppose in nature are mere subjective inferences of ours, due to association and liable to error, for in the last resort they are dependent merely upon an *inductio per simplicem enumerationem*. Hence there is, strictly speaking, no certainty at all in our knowledge. Even the truths of mathematics are generalisations from experience, and our experience might quite well be such that 2 and 2 made 5.

Now, is such a logical theory capable of being worked out consistently? That Mill himself worked it out consistently even his greatest admirers will hardly admit. A champion of extreme nominalism in his theory of definition, he found himself nevertheless obliged to argue for the existence of "real kinds"; and, as Mr. Herbert Spencer has acutely pointed out,[1] while impugning the principle of the inconceivability of the opposite as the test of truth, he admits the validity of the *reductio ad absurdum*, which rests on that very principle. The psychical atomism of Mill is now discarded even by those who profess themselves Empiricists. But I do not know whether those who insist that consciousness is a *continuum*, and not a collection or series of discrete feelings, always fully recognise the logical implications of their psychological theory. Prof. William James, whose *Psychology* has done so much to break down the traditional doctrine of the English empirical school, might have been prepared, one would suppose, to admit the doctrine of identity amid diversity as fundamental. But his recently published volume of Essays, *The Will to Believe, etc.*, contains a defence of "pluralism," which, though not expressly applied to logic, would certainly have been helpful to J. S. Mill in his endeavour to eliminate necessity from thought. Prof. James's "radical empiricism" has been hailed by Mr. F. C. S. Schiller (in MIND, N.S., vol. vi., No. 24) as "a declaration of the independence of the concrete whole of man, with all his passions and emotions unexpurgated, directed against the cramping rules and regulations by which the Brahmins of the academic caste are tempted to impede the free expansion of human life. The great lesson it illustrates," according to Mr. Schiller, "is that there are not really any eternal and non-human truths to prohibit us from adopting the beliefs we need to live by, nor any infallible *a priori* test of truth to screen us from the consequences of our choice." A declaration of independence from the multiplication table ought to be popular among schoolboys, and

[1] *Principles of Psychology*, ii., p. 422.

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there are many persons everywhere short of cash (and not merely the Silver Party in America) who have a strong "will to believe" that something less than 2 and 2 ought to make 4. Prof. James's own claims on behalf of his doctrine seem to me much more modest than those of his enthusiastic reviewer; but he does argue that the Universe may not ultimately be one coherent system, but may contain real contingent elements,[1] and such a pluralist system (or want of system), Prof. James thinks, commends itself better than monism to the demands of our moral nature.

Now, as to the demands of our moral nature I shall have something to say presently. The first matter to be considered is, not whether a real ultimate incoherence, a real contingency, can be proved or disproved, but whether it has any intelligible meaning. That the world of our experience, the world as it appears to us, is full of the unexpected, the incongruous, the uncertain, needs no saying. If we were dependent upon experience alone, in the sense of the mere succession of sensations, should we ever have arrived at any belief in any uniformity of nature? Pluralism, says Prof. James, is the *prima facie* appearance of the world.[2] It is so—to *adult unreflective* "common-sense". Hume drew the perfectly sound conclusion from thorough-going empiricism —namely, that all certainty is an illusion. I cannot see that experience (*i.e.*, sensation or feeling-experience) alone gives us even the identity of the self or the continuity of time and space (the three *continua* that Prof. James admits). Experience alone gives merely an undifferentiated mass of feeling (I use the word here in the sense of older English psychologists), out of which we speculatively and hypothetically construct for our practical convenience a multiplicity of definite "things" existing alongside of and after one another. The unity and individuality of each of these is a unity of theory, and not of "brute fact"; and their arrangement in any one system or set of systems is also a matter of theoretical construction. Of course the greater part of the theoretical systematisation of our actual experience has been done for us by our predecessors, and is simply taken over by us in the language we learn as part of our social inheritance. But this does not affect the truth of the statement, that all that is given us as mere fact in our own individual experience is uninterpreted sensation or feeling. And the uninterpreted sensation or feeling, as Plato saw long ago, is not, and cannot be, known or intelligibly spoken

[1] *The Will to Believe, etc.*, p. 294. [2] *Ibid.*, p. viii.

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about. The only test, therefore, that we can have of reality, other than this appeal to uninterpreted feeling—an appeal which can obtain no intelligible decision—is the test of coherence in thought. So that any one who throws doubt—entire doubt, as Mill does, or partial doubt, as Prof. James does—upon the worth of this test of coherence, throws doubt upon our *knowing* any reality at all. For the real which is felt is, as merely felt, not known.

A multiplicity of sensations was accepted by Hume and Mill as the datum of experience. It has been rejected by later psychologists. The isolated pure sensation is an abstraction of reflective analysis, "a psychological myth" as Mr. Ward calls it. A multiplicity of "things interacting" is not a datum or primitive fact of experience, but an hypothesis, a rough and ready "methodological device" to systematise our thinking, which does well enough for the ordinary practical business of life, but which has to be discarded by advancing scientific thought in favour of some hypothesis of one underlying substance or force manifesting itself in many ways. If a presupposition of the unity and coherence of the cosmos is necessary for the working of the sciences, and if the sciences manage to work and enable us to anticipate experience and to control nature better than we can without their aid, this presupposition is not to be disposed of by being called merely "methodological". On the other hand, a supposition like that of objective chance or real contingency, which will not work and which would prevent us carrying on scientific investigation, may be safely put aside. It will not do to suggest that "chance" in science generally is parallel to friction in mechanics. We do take account of friction in all practical applications of mechanical theory; and similarly we take account of our likelihood to err or to be ignorant; we admit "chance" as a name for our ignorance, but we do not suppose anything uncaused or happening absolutely at haphazard. The parallel of friction will not support the objectivity of chance.

Knowledge is only possible on the assumption of the absolute validity of the principle of contradiction, or to put it more widely, of the principle of coherence in thinking: the incoherent cannot be true, the true must be coherent, though the seemingly coherent is not necessarily true unless we suppose all experience exhausted. This principle in the form of the principle of contradiction or "the inconceivability of the opposite" is often treated as if it were inapplicable outside of formal logic, the logic of mere consistency. But this arises from a narrow interpretation of the principle

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which makes it a mere negative counterpart of the principle of abstract identity, and from the traditional separation of these "formal laws of thought" from the principles of material truth—the Principles of Sufficient Reason, of Universal Causation and Uniformity of Nature—or however we choose to describe them. Nothing can be deduced from the principle of Contradiction absolutely *a priori*, *i.e.*, without any reference whatever to experience. In arithmetic we must get our imagination of units from what we see or touch—as a matter of fact from our fingers—or from sensations of the heart beating, etc. In geometry we must have our intuition of visible or tangible figures from which by abstraction we get the surface, the line and the point. In the Principle of Sufficient Reason the reference to the matter of experience is obvious. But both principles, or sets of principles, are the same principle of Coherence, and they differ simply in degree of abstractness. Truth, the only intelligible truth, must be one and indivisible: and the same principle which determines the validity of mathematical reasoning determines the validity of reasoning about the most complex of natural phenomena or about human affairs. We can obtain greater certainty in the more abstract than in the more concrete sphere, not because the properties of triangles are regulated by fixed order and the affairs of men given over to hazard, but simply because we can state clearly to ourselves and others all the conditions under which we make our assertions about the abstract relations of space, whereas we are constantly obliged to make rough general statements about the concrete and complex phenomena of human society without fully stating or realising the conditions and limitations necessary to make our statements accurate. Every single event or thing in the universe, we are compelled logically to believe, is ultimately related to every other and determined by the whole to which it belongs and apart from which we cannot consistently think it: so that every statement whatever about any concrete event or thing must be inaccurate, because incomplete. The only perfectly true statements are statements about abstract matters, where the nature of the abstraction is clearly stated or understood. Our ordinary judgments of perception, if taken as expressing facts, are all more or less illusions —convenient illusions, as a rule, for the ordinary business of life. "I see green grass in the sunshine"—though an artist will tell me that I don't see green at all. "I hear the postman's knock"; "I hear the College bell ringing"; "I see a cubical box lying some distance off and see that it is of

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the same size as the one beside me". In all such cases it requires an effort of psychological analysis to discover the halfpenny worth of fact amid the intolerable deal of inference with which we wash it down. So, too, we continue to talk of sunrise and sunset, of the body influencing the mind and the mind the body, of ideas coming suddenly into the mind, of acts done without a motive, of chance and accident, although our physical or psychological theories may contradict these convenient illusions of unreflective thought. A universe which is one system, but a system whose infinite complexity we never grasp and to which we strive to approximate through various kinds and degrees of abstraction—such a "one in the many" is the presupposition of all science, and a complete comprehension of it is the unattainable ideal of a synthetic philosophy.

The two extreme types of philosophy are those represented in the Greek world by the Eleatics and the Heracleiteans (I say expressly the Heracleiteans, not Heracleitus, for Heracleitus himself seems to have grasped, though not in any purely logical or ontological form, the idea of a unity amid the manifold, while his paradoxical followers whom Plato ridicules, being out and out pluralists, made all assertion impossible). In modern times we find the same antithesis between Spinoza (so long as he adheres strictly to his *Omnis determinatio est negatio*) and Hume with his world where all events are "loose and separate". In other systems the same two tendencies may be traced, *e.g.*, if we contrast mediæval Realists and Nominalists or modern Idealists and Empiricists; but in none does it come out with such sharpness. The reconciliation is, however, generally some more or less unsatisfactory compromise which alternately allows the balance to incline to the side of unity or to that of diversity (*e.g.*, in Empedocles and Anaxagoras among the ancients; in Kant and Lotze among the moderns). Only Plato in his later dialogues,[1] and Aristotle not quite consistently among the ancients; in modern times only Leibniz occasionally and Hegel have really grappled with the problem of the complete and systematic reconciliation of the One and the Many. Plato's first attempt to escape from the sceptical consequences of the Heracleitean pluralism was, apparently,

[1] I here assume the truth of the theory which puts the *Parmenides*, *Sophistes* and *Philebus* later than the *Phaedo*, *Phaedrus* and *Republic*. Lutoslawski (*The Origin and Growth of Plato's Logic*, 1897) seems to me to have thoroughly established the view which Prof. Lewis Campbell had maintained and elaborately supported in his edition of the *Sophistes and Politicus*, 1867.

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to take refuge, like many poetical and mystical philosophers in all ages, in a dualism which cut off Reality from Appearance—a dualism which makes the world of appearance an illusion. In the intelligible world there were "ideas" each one and separate: in the sensible world diversity. Under the influence, apparently, of a profounder study of Eleatic thought and possibly shaken from his confidence in his earlier solution by the criticisms of his brilliant young pupil, Aristotle,[1] Plato came to see that dualism puts off difficulties and does not solve them, and that to explain the world of appearance it is necessary to recognise that in the intelligible world itself there must be diversity as well as unity. In the same way Christian theology, which is just Platonism applied to the interpretation of the beliefs of the first Christians, came to recognise that the relation of God to the world and to man cannot be thought out, unless in the Divine nature itself there is diversity and not merely abstract unity. The doctrine of the Trinity is often represented by opponents and by anti-rationalist believers as if it were a mere magical violation of arithmetic, whereas it is a recognition in a theological form that the abstract category of quantity is inapplicable to what is most real—the spiritual principle which governs the universe. Aristotle, when he is expressly engaged in criticising Plato, seems to disparage unity; but it is only to "excessive unification" (*τὸ λίαν ἑνοῦν*) that he objects—to an abstract unity which excludes difference. His idealism is more fearless than Plato's earlier philosophy: for he does not seek to escape from the manifold details of the world of appearance but to find rationality (*θεῖόν τι*) in what Plato had thrust aside as irrational. Still it must be admitted that even Aristotle seems to fall back upon a notion which looks very like that of objective contingency

[1] It is Parmenides himself who is made to criticise the earlier theory of Plato; and the discussion is carried on with "the young Aristoteles who was afterwards one of the thirty". This suggests an allusion to Plato's young pupil. If we can suppose the criticisms of the *Parmenides* to be partly Aristotle's own and the views Aristotle criticises in the *Metaphysics* to be those of *οἱ τῶν εἰδῶν φίλοι* (of *Soph.*, 248A)—*i.e.*, other pupils of Plato who had adhered to the earlier doctrines of their master—the difficulty of explaining Aristotle's criticisms of the theory of ideas seems to me greatly diminished. But the question cannot be discussed here. Lutoslawski (*The Origin and Growth of Plato's Logic*, p. 401) argues that, even if we admit the possibility of an allusion to Aristotle in the "Aristoteles" of *Parm.*, Aristotle was too young to have made objections which modified the course of Plato's thought. Surely a Greek youth of eighteen or twenty might well have raised metaphysical difficulties, especially when that youth was Aristotle. Berkeley at twenty was criticising Locke in his commonplace-book.

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or chance, though he describes τύχη and τὸ αὐτόματον not as positive agents, but merely as στερήσεις[1]—so that he must have held a theory of the imperfections in the universe more comparable to that of Spinoza than to that of Prof. James, who pleads for the recognition of "real evil" and "real contingency" apparently in the very same sense as that in which he wishes to maintain "a real God" and "a real moral life".[2]

In the special province of logic two extreme types of thought have been represented among us, though not with the same relentless audacity as among the Greeks. The Pure Formal Logic of Hamilton accentuates the principle of Identity in such a way as to reduce Logic to a manipulation of abstract quantities. Mill, on the other hand, resolves inference into a mere unexplained transition from one particular to another. Hamilton and Mill did not go to the extremes of Megaric (or later Eleatic) and Heracleitean (or Cyrenaic) Sophists, who, from the opposite points of view of Identity and Difference respectively, agreed in making predication impossible. But Hamilton's quantification of the predicate tends to abolish the distinction between subject and predicate which seems essential in every real judgment: and Mill's refusal to see anything "new" in the conclusion of a syllogism, unless the conclusion be absolutely disconnected with the premisses, makes inference impossible.

In logic, as commonly understood, we are only brought into the presence of the problem of the One and the Many; but the problem is certainly there, confronting us in every one of the customary divisions of logic. (1) What is the general concept? If it is said to be an abstraction from particulars, what is meant by this? Is there nothing general except the name? If so, how can we distinguish "real kinds" (which even Mill

[1] *Cf.* Mr. Stewart's remarks on τύχη and τὸ αὐτόματον in *Notes on the Nicomachean Ethics*, vol. i., pp. 259, 260.

[2] It may be urged that even Aristotle does not succeed in getting rid of a dualism such as he himself finds fault with in Plato's theory of ideas (as he understands that theory); but it may still be maintained that both Plato (in his later dialogues) and Aristotle have endeavoured to see the One in the Many and the Many in the One, instead of adopting either the one-sided theory of an Abstract Monism like the Eleatics (and the Stoics afterwards) or contenting themselves with the rough and ready "pluralism" of popular belief. When Plato is spoken of as a "dualist," it should be remembered that what he calls "matter" or "the unlimited" is described by him in more metaphysical language as "the other". It is the "not-being" which "is"—the negative element and not a second positive element alongside of the ideal element. The language in which the *Timaeus* describes the making of the physical universe is "mythical" and must not be taken literally.

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recognises) from *τὰ ὁμώνυμα*? If generality is only a generality in our thought, how can we distinguish truth from falsehood in the case of any general proposition? If we are thinking rightly when we think something common to different things, must there not *be* something common to them, identical amid the difference? Either we must give up the possibility of any scientific proposition, or we must admit some amount of truth in Platonic Idealism and Mediæval Realism. (It is curious how those who speak most about the laws of nature often throw most scorn upon "Universals".) And so we arrive at the old problem: How can the many "partake" in the One? How can the One be manifested in the Many?

(2) The judgments, which we really think and utter—as distinct from artificial dried specimens in text-books—cannot be either purely analytic or purely synthetic. They cannot be either of the type "A is A" (A remaining absolutely self-identical in subject and predicate), nor of the type "A is B" (A and B being absolutely different).[1] Even in the negative judgment as really thought and uttered there must be some ground or basis of identity.[2] No one thinks it worth while to judge that "An elephant is not an illicit process of the major". All real judgments involve an identity in difference, a difference in identity. Judgments differ in degree of development—as Mr. Bosanquet has fully shown: and the most highly developed type of judgment—the disjunctive—in its logical ideal of an exhaustive enumeration of mutually exclusive alternatives makes the identity and the difference within that identity apparent in its very form.

[1] "A (*Alpha*) is ℵ (*Aleph*)" has been suggested to me as the most appropriate symbol for the judgment.

[2] Negation implies a possible affirmation, as Aristotle recognised. But Prof. James exaggerates this into falsity when he makes an absolute distinction between the affirmative judgment as objective and the negative as merely subjective (*The Will to Believe*, pp. 290, 291). A negative judgment is, as really thought or uttered, just as much a judgment about reality as an affirmative. And an affirmative judgment, as really thought or uttered, is just as much relative to some possible negation as a negative judgment is relative to a possible affirmation. "There is no God but God, and Mohammed is his prophet." Here we have a negative judgment directed against the pagans who assert the existence of other gods and an affirmative directed against those who deny that Mohammed is a true prophet. Affirmative clauses are only put into creeds when somebody is denying them. All genuine affirmation is negation of negation. "Smoking carriage" means that the rule prohibiting smoking does not hold there; just as "*Nichtraucher*" negatives the prevailing habit. Prof. James must think that the English notice says something about objective existence while the German notice does not!

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(3) The whole controversy about Inference turns on the same question: Can we pass from particular to particular except through a universal, identical amid the difference of these particulars? "We have not got inference," as Mr. Bosanquet says,[1] "unless the conclusion (i.) is necessary from the premisses, and (ii.) goes beyond the premisses." This is "the paradox of inference". There must be something new, and yet there must not be anything new. It is the old puzzle about the impossibility of learning, raised by the Greek Sophists; and it is only capable of solution, if we are allowed to make the distinction between what is implicit and what is explicit—a distinction which Mill puts aside as "a mere salvo"[2]—and to recognise that identity and difference are not mutually exclusive, a conclusion which cost Plato a great dialectical struggle, and which to modern common-sense still seems absurd.

(4) The more concrete problems of logic, such as the investigation of the methods of proof in the sciences of observation and experiment, make it clear, as has been already said, that all science, all that can be called real knowledge, all that can be called "experience," in the sense in which experience supplies the materials for science, presupposes a coherent universe. The philosophical doubter, like Hume or Mr. Arthur Balfour, professes to be able to think a universe in which every event is "loose and separate," in which there is a "haphazard multiplicity of unordered succession".[3] Hume logically remains a complete sceptic, and holds that he has shown the impossibility of metaphysics; but Mr. Balfour thinks such a universe may satisfy the modest claims of philosophy, though he sees clearly enough that such a universe could never be interpreted by science. The possibility of even a few absolutely isolated, detached "phenomena" or "events" would upset the presuppositions with which science works. The accidental or contingent for science can only mean the as yet unexplained, never the uncaused or really spontaneous. Science demands a One in the Many in a much fuller sense than the co-existence of unrelated events in one Time and in one Space and (even) in one Consciousness. And surely philosophy, which attempts, however vainly, to obtain "complete unification," should not be satisfied with a lower standard of coherence, a less organised system, than satisfies the various particular sciences. It cannot settle down contented with an accept-

[1] *Essentials of Logic*, p. 137. [2] *Logic*, book ii., ch. iii., § 2.
[3] *Cf. The Foundations of Belief*, p. 154.

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ance of mere plurality or multiplicity. The philosopher cannot, as such, make a system of Louis Stevenson's delightful child's-verses :—

> The world is so full of a number of things,
> I'm sure we should all be as happy as kings.

## II.—The Metaphysical Problem.

Thus metaphysics receives from logic the problem of the relation between the One and the Many. That in some sense the One must be in the Many is all that the science of logic requires. How? In what sense? That is the problem which metaphysics must attempt to solve and is always attempting to solve, whether a solution be possible or not. Popular thinking, or want of thinking, is content to leave such problems alone, or to accept any partial and haphazard solution of them: and a certain kind of popular philosophy has in all ages since the time of the Greek Sophists been ready, in its fear of "letting philosophy go too far," to lend support to the intellectual indolence of "the vulgar". Prof. James's "Essays in Popular Philosophy," as he purposely calls them, are the latest important example of brilliant cleverness holding a brief for laziness and stupidity. So far as I can make out, the main theses in Prof. James's qualified defence of the pluralism of ordinary belief are these: (1) that monism resolves real facts into illusions, (2) that philosophy is bound to satisfy other demands of our nature than those of reason, and (3) that, in order to explain that free-will which is presupposed in our moral judgments, we must posit a real objective contingency in the universe. If I have done any injustice to Prof. James in formulating these theses in a few words, I must apologise and excuse myself by explaining that I am not asking for any formal condemnation of his book on the ground of its containing philosophical heresy, but that I am simply using it as a suggestive expression of a discontent with idealist philosophies that is widely felt; and of this discontent these three theses seem to me a sufficiently precise statement.

As to the opinion that monism resolves real facts into illusions, the criticism is undoubtedly applicable to strict monism like that of the Eleatics, to the predominant tendency of Spinoza's thought and to systems like those of Oriental pantheism or their modern imitations in Schopenhauer and others,—systems which treat the world of appearance in space and time as a world of illusion that we must

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leave behind us in order to discover truth. But the criticism seems to me inapplicable to the later form of Plato's idealism, and inapplicable to the idealism of Aristotle, which refuses to make any absolute gap (χωρισμός) between the One and the Many, and least of all applicable to the philosophy of Hegel, whose whole effort is to break down the barrier which Kant had set up between the unknowable world of unintelligible *intelligibilia* and the phenomenal world of our experience, and to regard this world of phenomena in space and time as the revelation and the only revelation we can have of the ultimate reality of things (the Idea). To call the phenomenal world a world of appearance is not merely to translate Greek into Latin, but it is to express more clearly than the word "phenomenal" can now do in English, that the world of our experience, whilst not simply as it presents itself to our senses completely true, because full of self-contradiction, is nevertheless real and true in proportion as we come to see it as the manifestation of an intelligible world. "Illusions" are sensations wrongly interpreted, facts which have been so placed by us in our system of belief that they do not fit in with the rest of what we accept. The world of appearance is not as such illusory; for we believe that it admits potentially of a coherent and intelligible interpretation. Prof. James, referring to the idea—an idea not of philosophers only but of many orthodox theologians also—that the creative mind must be timeless, goes on to treat this as equivalent to the assertion that "time is an illusory appearance".[1] Now since our minds are not the creative mind but can only know things under the condition of time, where is the illusion, especially if we *know* that time is a necessary condition of the appearance of things to us? I know that I cannot see all the sides of a building at once; I am not subject to any illusion thereby, for I recognise the limitations of my knowledge. I should indeed be subject to an illusion if I judged from my own experience that the front and the back of the house could not possibly coexist in time, or that they could not be seen at once by some one who was able to look down through the roof. As already pointed out, an element of illusion enters into most of our ordinary judgments of perception; but it is an element of illusion which in practice we disregard because it is harmless and even convenient. We get rid of these illusions by psychological analysis, *i.e.*, by substituting scientific reflexion for ordinary unreflective thought.

[1] *The Will to Believe, etc.*, p. 181, note.

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The contrast between "illusion" and "reality" is of a different kind from that between "appearance" and "reality". The person who has an illusion believes in it, so long as he has the illusion. He does not know it to be an illusion. When he does, he ceases to experience the illusion as an illusion. But he who is aware of an appearance continues to experience the appearance, even when he knows it to be mere appearance and can get behind it to something more real. He who knows phenomena to be mere phenomena knows them to be a partial and imperfect interpretation of reality. If a child in a moving train thinks the scenery is actually rushing past him and that the carriage in which he sits is at rest, he has an illusion: he has misplaced a real bit of experience. When he comes to know that the moving trees and houses are merely "appearance," he has got hold of a bit of reality through the appearance. The feeling of conviction, however strong, is no proof of reality; but its presence or absence is what differentiates "having an illusion" from "being aware of appearance". Prof. James in his *Principles of Psychology*[1] argues for the emotional character of the *belief* in reality—soundly enough so far as "belief" is concerned. "One of the charms of drunkenness," he says, "unquestionably lies in the deepening of the sense of reality and truth which is gained therein." And the "Will to Believe," it might be added, may resort to various forms of intoxication other than alcoholic. But let me appeal from Prof. James psychologically appreciating drunkenness to Prof. James thinking soberly. "The greatest proof," he says,[2] "that a man is *sui compos* is his ability to suspend belief in presence of an emotionally exciting idea. To give this power is the highest result of education."

Appearance (the world of phenomena) is the real, as confusedly and partially understood. It is "empirical reality"; it is "objective" in the sense of existing for the general mind. The real is the apparent completely understood and seen in the light of the whole. Appearance is the appearance *of* reality. If we know "only phenomena" we must thereby know something of that of which they are phenomena. Complete comprehension, indeed, remains an ideal for knowledge—the ideal of totality: and so we must distinguish between different grades of reality. This is constantly ignored by critics of Idealism. Thus Mr. Balfour[3] speaks of the Absolute, if it is not a mere "barren abstraction," holding in suspension "without preference and without repulsion every

[1] Vol. ii., p. 284. [2] *Ibid.*, p. 308. [3] *The Foundations of Belief*, p. 146.

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element alike of the knowable world". And similarly Mr. F. C. S. Schiller, in an article entitled "Lotze's Monism,"[1] says that if God be identified with the Absolute, then "all the phases of existence are *alike* characteristic of the All. God is evil as well as good, or better still, non-moral and indifferent, manifesting himself in all things *alike*."

Now, while a thorough-going Idealism must protest against the arbitrary preferences of hasty and immature thought, as Parmenides protests against the hesitation of Socrates to recognise ideas of mud and dirt, it follows that if the intelligible world be the truth of the phenomenal, we must distinguish within the world of appearance between those aspects of things which have more reality and those which have less reality in them. Where there is more contradiction and incoherence, there must be less reality than where we find rationality and organic system. Even Spinoza, who tends to deny any reality to the manifold and diverse, nevertheless recognises degrees in the extent to which things have reality.[2] Hegel has distinguished very explicitly between the mere existence or mere appearance of things and that reality which he identifies with the rational. Metaphysics cannot rest content with discovering the contradictions in the world of appearance, as it presents itself to us in our ordinary experience, or even as it is partially rearranged and translated into intelligible terms by the sciences: there remains the positive and constructive task, at least as an ideal, of a systematic exposition of the world of appearance as the manifestation of the Absolute Reality. Now this was what Hegel attempted; and it is just one of his greatest claims to our admiration, that he did take the whole task of philosophy as seriously as Plato and Aristotle had taken it. His unfortunate error lay in putting down what could only be provisional and hypothetical interpretations as if they were to be taken as final. If we are to "think" the universe we must endeavour to comprehend the meaning of nature and still more the meaning of human history and the works of the human spirit in which the manifestation of the ultimately real becomes more intelligible to us. That human history is a small thing in the whole universe and that human history is very imperfectly known to us are undoubtedly difficulties which Hegel did not recognise explicitly enough; but they are no excuse for a philosopher declining the task of trying to understand the universe so far as he can by looking at

[1] *Philosophical Review*, vol. v., p. 242. The italics are mine.

[2] *Cf. Ethica*, i., prop. 9.

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those things which speak to us most clearly. Mr. Balfour has only renewed Lotze's general objection to Hegel's philosophy of history when he speaks (with special reference to Æsthetics) of "something rather forced and arbitrary in the attempts that have been made to exhibit the artistic fancies of an insignificant fraction of the human race during a very brief period of its history as essential and important elements in the development and manifestation of the 'Idea'".[1] Yet when Mr. Balfour is himself dealing with the precisely similar and much more plausible objection to the Christian idea of the Incarnation, he rightly protests against the exaltation of quantitative magnitude into a criterion of spiritual significance.[2]

We must distinguish between different grades of reality, and we are justified in interpreting the universe in terms of the highest and clearest that we know. The inorganic seems to us easier to understand than the organic, the organic than the self-conscious, only because we care to know less and expect to know less about the inorganic than about the organic, about the merely organic than about the self-conscious. Our demands for explanation become more exigent and more difficult to satisfy the more we approach the complex facts of our own personality. In geometry we only care to know about *the* triangle (*this* triangle is merely a symbol, and a very roughly drawn symbol will serve our purpose). In biology it is the species we describe and study; the individual is only a specimen, though a fairly good specimen is necessary. And similarly in sociology—so far as sociology exists as a science. But in studying human beings in history we have an interest in the individual, and we cannot rest satisfied with general causes and vague explanations. This is admirably brought out by Prof. James in his essays on "Great Men" and "The Importance of Individuals". In this also, I think, is to be found the element of truth underlying the very ambiguous statement that philosophy must satisfy other demands than those of reason. Philosophy must certainly satisfy other demands than those of the abstract understanding which works in the special sciences. No great man—no individual man whatever—can be completely explained by being analysed into general tendencies. No scientific explanation of any kind known to

[1] *The Foundations of Belief*, p. 155, note. *Cf.* Lotze, *Metaphysics*, book ii., ch. viii., § 217. "In spite of this [admission of the Copernican discoveries] they persuaded themselves that the spiritual development of their Absolute was confined to the shores of the Mediterranean."

[2] *The Foundations of Belief*, pp. 344-5.

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us—no victorious and aggressive science of sociology—is likely to dispense us from the need of recognising the factor which the temperament and character of individuals—nay, the particular acts of individuals or the particular "accidents" that happen to individuals—contribute to the shaping of human affairs. (I use the term "accident" for convenience, just as biologists speak of "accidental variations," meaning those of which we do not yet know the cause.) The reason is that we are interested in human beings and human events in a far higher degree than that in which we are interested in the secular movements of the stars or in the succession of organic types. Suppose that we wished to know, not merely why plants, like ferns or *coniferæ*, are more ancient than flowering plants, or to know roughly how many centuries must have elapsed since the last glacial period in Northern Europe; suppose that we wished to know why this particular fossil fish and no other came to be embedded in this particular place where we find it, or why this particular granite boulder is lying precisely in this spot—suppose our curiosity extended so far, are we likely to get any certain and precise answers from science? But our curiosity with respect to human beings and historical events is of this very minute kind: and therefore we must be prepared to find a large unexplained residuum after our best efforts have been made at comprehending anything in regard to human history. We are dissatisfied with the general explanations that do perfectly well when applied to the great phenomena of nature. We ask for something fuller and more concrete. And though, as a matter of fact, we do know much more about the conscious and deliberate acts of many human beings (*e.g.* Cicero or Samuel Pepys) who have left us some record of their fleeting feelings and opinions, than we know or want to know about the behaviour of any individual ichthyosaurus or mammoth, our interest makes us more exacting and less content with the abstract formulæ of scientific description. The unexplained element in human things concerns us more deeply, and though it is really smaller in proportion, on any fair comparison, than in natural phenomena, it yet bulks more largely in our discontent and makes us feel the inadequacy of all attempts to think the universe as a whole, especially in those aspects of it which affect us most and which seem to promise, if we could only get at the heart of them, most insight into the meaning of things. But it is one thing to admit all this: it is another thing to disparage rational explanation and to demand something else from philosophy; it is another thing



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to set up the as yet unexplained as if it were an element absolutely outside the comprehension of even the most perfect intelligence conceivable. To do this is to turn our ignorance and impatience into a measure of the universe, of what is and what is not, in a far wilder fashion than can be charged against the boldest idealist construction.

The business of philosophy must be to think the world—to carry on that work of making things intelligible which is begun by the sciences. It is relevant to object to a philosophical system that it ignores some set of facts (if they are really facts) and does not explain them, *i.e.*, does not fit them in with other facts and show their relation to the whole. It is possible and not difficult to show that every philosophical system is inadequate, because no philosopher has explained everything rightly and because all in varying degrees have erred and fallen into confusion of thought. But it is irrelevant to ask from philosophy the satisfaction of other than intellectual demands. Philosophy is not a good dinner, nor is it fine music, nor is it now-a-days the ecstasy of passionate love or of religious emotion. The consolations of philosophy must remain somewhat grey and grim. That human nature has other than intellectual needs—in fact that most human beings have very limited and easily satisfied intellectual needs—is one of those facts which philosophy must take account of, perhaps somewhat sadly. But philosophy would only be made absurd, if it were to profess to satisfy other than intellectual demands. The attempt to bring it down to the level of "the vulgar" by throwing in concessions to popular sentiment may make the name of philosophy popular but at the expense of its credit for honesty. A public which is satisfied with the political philosophy of the Declaration of Independence will doubtless be pleased with the assertion of the liberty of the individual to believe what he wants to believe. It is what people generally do, and there is no necessity to provide them with a philosophical formula to cover the nakedness of their haphazard thinking. A man may not like mathematics: he may prefer roulette. But do not let us suggest to him that he should pretend, while he travels to hell *vid* Monte Carlo, that gambling is a superior kind of mathematics. Another person may dislike metaphysics, especially Hegelian metaphysics, and may prefer the most emotional and irrational religion he can find. But while he travels to heaven under whatever irrationalist authority he elects to follow, we need not tell him that he is a profound philosopher all the time. The truth of a scientific proposition or of a philo-

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sophical theory is not refuted by any one acting as if it were not true. The straight line is the shortest distance between two points; and yet a man may go a long way round on the chance of meeting his sweetheart or in order to call at his favourite publichouse.

And the old difficulty always recurs. Whose nature is to be satisfied? Live in the sensation of the moment, if you can, and do not think about the next. But if you once begin thinking and construct some rudiments of a system, you have appealed to reason and by reason you must be judged. So long as you blindly submit, as most human beings do, to the authority or tradition under whose influence you have grown up, you can escape the arbitration of thought; but if you once begin to weigh one authority against another, whatever may be the psychological explanation of the choice you finally make, your comparison of competing authorities must be made in terms of reason.

An appeal to any other ultimate authority than that of reason is an appeal which makes discussion impossible and absurd. Plato, taking Protagoras's *Homo mensura* to mean a declaration of the rights of every individual human being's feelings, asks why Protagoras should expect us to give more weight to his own opinion than to the opinions of a pig or a baboon or a tadpole.[1] And if the appeal to reason is to be suspect, can Prof. James claim any more value for his opinions than for those of the American eagle (if there be such a bird) or of the Pope or the Sultan? If the answer be that practice is the real test of the value of opinions, we may admit that, with regard to opinions in so far as they affect practice, on the very ground that the true is the coherent. But what is our test of the relative value of different kinds of life except an appeal to reason? If the question were put to the vote, a very small minority would vote for the pursuit of philosophical thinking, even of the lively type practised by Prof. James, in comparison with the pleasures of betting at horse races or looking on at football matches. In philosophy there can be no appeal except to reason. A philosophical theory is bound to take account of the whole nature of man along with other things in the universe which seem to pay very little regard to any man's private likings, but the ultimate appeal must be to clear and distinct thinking. That system which can give the most coherent account of the seemingly chaotic world of our experience must be preferred, however unpleasing the result may be to

[1] *Theaet.* 161, C, D.

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the feelings and wishes of this or that person. A system of philosophy must explain the fact of widespread beliefs as to religion and morality: it does not follow that it must confirm them all in their original form any more than that it must uphold the beliefs of unscientific "common sense" about the physical world. It is too much to expect philosophy to confirm beliefs which are often mutually self-contradictory. "The heart," it has been said, "has reasons that the reason knows not of." "True," says M. Fouillée; "but whose heart? Is it the heart of the cannibal savage or the heart of the civilised man? the heart of the Musulman or that of the Christian? Everything depends on the intelligence that is in the heart, whether it be in the reflective stage or in the stage of inherited traditional belief. The supposed conflict between intellect and feeling is in reality a conflict between one form of intellect and another, between reflective and unreflective thought."[1]

## III.—The Theological and Ethical Problem.

In modern times dissatisfaction with Monism or with any reconciliation of Monism and Pluralism which does not finally give the primacy to the Many is connected, not with difficulties in the explanation of the physical universe—there Monism is easily triumphant—but with difficulties about personality. A "real personal God," a "real human soul" that cannot perish or become absorbed in anything other than its isolated self, "real absolute free will" in however restricted a domain—these moral ideas are supposed to be irreconcilable with any ultimately monistic system, and to compel us to adopt an ultimate Pluralism.

The picture-thinking of ordinary unphilosophical thought most certainly assumes a system which is pluralistic, and can only be described correctly as one of Polytheism—God being thought of as one great and powerful spirit among other independent spirits, who may indeed be his offspring, but who are governed by him only as human beings are governed by a monarch, and who can and do disobey, and who may even plan to dethrone him and set up a republican form of government.[2] Now, if a philosophy is bound to

[1] *Le Mouvement Idéaliste*, p. lx.

[2] Prof. James has suggested an even more prosaic possibility. "That the universe may actually be a sort of joint-stock society, in which the sharers have both limited liabilities and limited powers, is of course a simple and conceivable notion" (*The Will to Believe, etc.*, p. 154). The

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justify in its literal form this *Vorstellung* of popular religion, then certainly pluralistic metaphysics must correspond to polytheistic theology. But the first requirement in a serious philosophy is that of self-consistency: and no picture or "myth" of this kind, whatever moral or spiritual truth it may contain, can be made self-consistent. If God is not the Absolute Being, if he is not the omnipotent, but can be really thwarted by rebellious spirits, *either* he and the other spirits are relatively independent beings within one system of things which is the true Absolute Being, *or* there is no system of things at all, and the universe is really that realm of chance in which "the materialist" is often said to believe. The Greeks advanced from the confused polytheism of primitive belief to the conception of "one God greatest among gods and men," and from that the transition was easy either to the Fate of the dramatic poets or to "the One" of Eleatic philosophy. An ultimate pluralism may be pictured, but cannot be seriously thought out. Either Fate or an Objective Chance (which is the same thing as blind Fate under another name) must control the relations between the many beings envisaged as "absolutes". That the many should be really and ultimately absolute is, so far as I can see, unthinkable, a contradiction. Each one is posited as absolute and independent. And yet each one is not absolute, because there are others, so that each is limited by the co-existence of others alongside of it; for, if not, there could be no interaction among the many. To say that the many existences are real, and that the relation between them is only "a relation," and therefore ideal, would be to fall a victim to a verbal distinction. The many can be expressed by nouns, their unity or their interaction can be expressed by an adjective or a verb: "relation" is an abstract term and "thing" is a concrete. But if the various "things" belong to one system of things, that system of things is the ultimate reality. If they do not belong to one system, we are left with something unthinkable. The isolated, independent individual is unthinkable if there be any others isolated and independent outside of it. "Isolated" is meaningless unless there are others from which a thing is isolated. There can be no real and absolute individual except the

Universe = "God and Company, Ltd.". The suggestion is not intended to be profane, but to be an accommodation to popular religious belief. To me it seems a *reductio ad absurdum* of "pluralist" philosophy or theology. It is to pass into a different intellectual atmosphere to turn to the words of St. Augustine and St. Paul: "An potius non essem nisi essem in te, *ex quo omnia, per quem omnia, in quo omnia*".

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whole universe. As we have already seen, however, this one universe must be thought of not as an abstract identity but as containing a multiplicity within it, as manifesting itself as a many.

Prof. James does not speak of absolutely independent beings, but of "a plurality of semi-independent forces".[1] The world is only in part disorderly and given over to a real objective chance. The doctrine may seem less harsh; but is objective chance made any more thinkable by the plea that it is "only a little one"? The mystery is rather increased than diminished by the concession that a great part of the universe is one coherent system. That only a part and a small part of the universe is known by us from experience to be coherent, must of course be admitted; but the whole procedure of the sciences by which that part has come to be known assumes that all is coherent. How is the transition made from the necessary to the contingent? Is it gradual or is it abrupt? To contingency as a name for our ignorance, it is easy enough to give an intelligible meaning; and in that sense the accidental or the contingent may safely be talked about. It is that which we know incompletely; and there are no things, and very few aspects of things, that we know completely. But Prof. James insists on the reality of chance as something objective *in rerum natura*. "I fancy," he says, "that squeezing the thistle boldly will rob it of its sting."[2] He seems to me to have got hold of the wrong plant for his audacious experiment. "*Nemo me impune lacessit*" is the answer of the thistle, and of logic. For chance cannot be consistently thought out as any partial contradiction of necessity. With ordinary unloaded dice there is a chance of my throwing double sixes, but there is no chance of my throwing double sevens. This only means that I know the number seven cannot appear where it does not exist, while I do not know which of the various possible combinations will occur on any given occasion. Prof. James insists that possibility must be "real". This *either* means that the possible is the actual, in which case there is no longer any place for uncertainty, subjective or objective, or (and this of course is what Prof. James intends) it means that one alternative may happen as well as the other, which means that something may take place without a cause, a supposition that would make all science impossible, and which moreover is not seriously thinkable, for it would mean the thinking of a particular event in absolute isolation from all others.

[1] *The Will to Believe, etc.*, p. 175. [2] *Ibid.*, p. 153.

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"Semi-independent" is indeed a phrase that might properly be applied to the parts of an organism; but they are certainly not intelligible nor capable of existing except in relation to the whole. And in the organism the more differentiated and individualised parts are to be found in the higher organisms, where the dependence on the whole is greater than it is in the lower forms of life. Is not the "independence" or "semi-dependence" of pluralist theory simply a mistaken interpretation of the individual which coexists with other individuals, whose very differentiation as an individual implies more complex dependences upon the whole to which it belongs? Independence of other parts or groups of parts is gained only by greater dependence upon the whole.

That there is some superficial plausibility in holding that certain regions or aspects of the universe are contingent, may however be admitted. Thus the numbers of the petals or stamina of flowers, which are definite in the case of small numbers (three in the monocotyledons, four or five in the dicotyledons) generally become indefinite and irregular when we get to numbers beyond five and six. It is as if plants were like savages who lost count beyond small figures. Nature's weakness (as Hegel would have put it) seems here to produce a real contingency. But I do not think the scientific biologist will so readily admit that the "accidental," though as yet unexplained, is absolutely inexplicable. Natural selection may account for the inaccuracy of nature when it deals with large numbers. With small numbers any deviation makes a greater relative difference in the symmetry and appearance of the flower, and so would affect the facility with which insects recognise it. But the difference, *e.g.*, between ten and eleven petals is one that does not affect the general look of a flower, and so nothing is gained by rigid observance of number. Natural selection not operating, number is determined by other causes. That may or may not be the explanation. I only mean to show that, because something *looks* as if it were a case of absolute contingency, we are not entitled to say that there may be no explanation for any intelligence whatever.[1]

[1] Leibniz, who laid so much stress on the difference between necessary and contingent truths *for us*, did not assert any absolute contingency. "The difference between necessary and contingent truths is the same as that between commensurable and incommensurable numbers. . . . Contingent truths require an infinite analysis which only God can accomplish. Accordingly, it is by him alone that these truths are known *a priori* and with certainty." *De Scientia Universali seu Calculo Philosophico* (Erdmann, p. 83 *b*).

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The question of the Will is perhaps to us the most prominent form of the question about the One and the Many. The metaphysical Greek intellect, when it came to be directed into theological channels, fought out the question of the One and the Many as a question about the Trinity and the Incarnation (How the One can be a plurality; how the One, the absolutely real, can appear in space and time). The practical Western mind, trained in the conception of Roman law, fought out the same problem but only in its ethical aspect—as the problem of free will and responsibility: How can the One Divine Will be reconciled with a plurality of angelic and human wills which nevertheless must in some way be subordinate to it?[1] From Latin theology we have inherited the question of the will as our chief and typical philosophical difficulty. I cannot discuss the question here. I shall only point out (1) that "fate," in the Oriental sense, and "necessity" or "determinism" are not the same thing but contradictory. Prof. James speaks as if "*fatal* decrees" were a part of the doctrine of necessity.[2] Now the fatalist says: "Whatever you do, such and such things will happen". The determinist says: "*If* your character is of such and such a kind, and *if* circumstances of such and such a kind occur, you will act in such and such a way". The fatalist's proposition is always absolutely categorical: it denies any hypothesis. The determinist's proposition is always hypothetical: and the hypothesis is one which in the case of a human being can never be certainly known to be true. Those who think psychological determinism inconsistent with that freedom which morality presupposes argue exactly as if we were to hold the first law of motion a dangerous doctrine, because if it were true we should be afraid to get up and walk, lest we should never stop. If the idea of the *vis inertiæ* is sound, we had best never begin to read Prof. James's book, because once beginning we shall never be able to stop reading it. The psychologist like any other scientific person is obliged to deal with abstractions. His propositions, if carefully stated, must always, like all carefully stated scientific propositions, take the hypothetical form. "Possibilities that fail to get realised are, for determinism, pure illusions," says Prof. James.[3] No; they are only abstractions. They are what would have happened, had certain conditions been different. The concrete reality is what does happen.

[1] *Cf.* Maine, *Ancient Law*, p. 353 *seq.* [2] *The Will to Believe, etc.*, p. 180.
[3] *Ibid.*, p. 151.

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(2) With regard to the theological, as distinct from the psychological, aspect of the question of the will, a difficulty arises in every attempt to think of man as endowed in any respect with an absolute free-will independent of the "Eternal Decrees" of God. If we picture God making man with free-will and then looking on to see what happens, ignorant of the result, there is conceivably a more powerful, and more prescient being who knows what will happen as the result of the first God's action. This latter being is therefore God. If this latter does not in every respect know or determine what will happen, he is not yet God and so on till we admit an all-knowing and all-powerful God—*Ens realissimum.*

That there are difficulties in this way of thinking of an Absolute being and the relation of such a being to the particular things in the universe is true enough. But is any less philosophical system of theology free from difficulties? Only so long as we avoid thinking them out.

Inferences *a posteriori*, as is recognised both by Kant and by J. S. Mill in his essay on "Theism," can only make probable the existence of an Intelligence of great but not of absolute power. But than such a being a greater can always be conceived; and "God" for philosophy cannot mean less than *id quo nihil majus cogitari potest.* Whether the Absolute can be called "good" in our sense of the word, which always implies comparison with a standard, has been doubted not only by philosophers but by some philosophical theologians also. But the Absolute must contain and surpass all that we know of as the highest goodness and the highest wisdom among mankind. (As Plato expresses it, the ἰδέα τοῦ ἀγαθοῦ is higher than righteousness.) The problem of evil seems indeed to be simplified, if we suppose a devil or a power of darkness struggling with the Lord of light; but it is the method of popular mythology to stave off difficulties by increasing the number of things to be explained. So far as we are justified in calling anything morally evil, we must be prepared to show that it is some element of weakness and incoherence, which tends to pass out of existence because it is not rational. But we call many things evil simply because they are inconvenient to ourselves: and yet some things very inconvenient to ourselves we discover to be inevitable and unalterable for us even by omnipotence, *e.g.*, the incommensurability of the diameter and the circumference of the circle or the impossibility of packing spheres as compactly as equal cubes. We all crave happiness and continuous happiness; but there

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may be abstract possibilities which, in Leibniz's phrase, are not "compossible". What right have we to set up our longings as a measure of the universe? Least of all are those entitled to do so who have begun by disparaging the certainty of clear and distinct thinking. No theory may be attainable by us which is satisfactory to all our wishes; but we gain nothing by adopting theories that will not satisfy our intellect, for these will always provoke doubt. Irrationalism is at all times the parent of scepticism.

Whether the balance of pain or of pleasure preponderates in human life is an insoluble question, because pain and pleasure are not absolute quantities capable of statistical measurement, but relative to the judgment of particular individuals in particular moods. When people begin to reflect on this matter they generally adopt pessimistic conclusions, for reflexion about pleasure kills happiness. But that pessimism, genuine and earnest pessimism, can never be the living creed of any large portion of the human race is secured by natural selection. Sincere and convinced pessimists would kill themselves or cease to continue their accursed race. Nature has taken care that those shall prevail who are not indeed passively contented optimists, but who at the same time have sufficient interest in the struggle of life to keep toiling on, working out some purpose which, even in the clearest consciousness, is only faintly recognised.

It is perfectly true, as writers like Prof. James and Mr. Arthur Balfour are fond of reminding us, that mankind do not live by clear and distinct thinking but by faith. But it is the business of philosophy to discover what that faith is and not to accept the plain man's account of the matter without criticism; for the plain man's answer is not really the answer of the unsophisticated consciousness, which is blind and dumb, but the answer which has been put into his mouth by those who have brought him up. Now the faith by which we live and work and occasionally think—whatever other faith (*Aberglaube*) we may superadd—is faith in the rationality of the universe. And this faith means (1) that the world is an intelligible system, one and coherent, however little we may have discovered about it, and (2) that there is some meaning or purpose in it all, that it is not a world wholly or partially left over to chance or caprice. The rationality of the universe includes the presupposition, not merely that events are linked together as material and efficient causes, but that they can be understood (ideally or potentially) in the light of the formal and final cause. The sciences of nature have to do mainly with the former mode

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of explanation, though their aim always is to reach formal causes (the laws of nature). But philosophy, which takes account of human life also, seeks for an explanation in terms of final cause, and even the sciences of organic nature, as Kant showed, have to use that conception at least as a methodological device.

In advocating the existence of an objective chance, Prof. James says that "our responsibility ends with the performance of [our] duty, and the burden of the rest we may lay on higher powers".[1] But can we do that unless we believe that the whole, including ourselves, is a rational system? If we believe in a real objective contingency, we are believing that there is a portion over which the higher powers have no control, and if we were really to believe that any demon or human scoundrel could actually and finally hinder the purpose of God, should we not have less heart for the fight, unless, indeed, we had such an inordinate "conceit of ourselves," as none of the world's best heroes have ever had, so as to fancy that we could do God's work independently of God's will? It may seem, perhaps, as if it made no practical difference to us whether what we find evil results from a rival power thwarting the benevolent ruler, or good principle in the universe, or from the necessary limitation of the temporal and spatial realisation of the Eternal Idea; but it makes a great difference for clearness of thinking: and even for practice it is surely better to feel that all is comprehended in a rational system, than that the fears of our discontent and despair are warranted by careful theory also. For if we believe that the highest being is not the Absolute, how do we know that he may not be defeated after all?

It may perhaps be answered that our philosophical faith is not in an actually existing rational system of things—experience prevents us believing in that—but in an end, a "final goal of ill" towards which evolution moves; that the conception of evolution involves the conception of the Absolute as Becoming, not as Being. The universe, it may be said, consists of a multiplicity of independent beings who gradually come to settle down into stable equilibrium—atoms or monads making as it were a permanent social contract with one another. The world then would be the "best of all possible worlds" in the sense that it is the arrangement best fitted to survive. Such a view undoubtedly agrees with much that is commonly said about evolution.

[1] *The Will to Believe, etc.*, pp. 174, 175.

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But it raises all the old puzzles that Zeno found in the "many" or "becoming" when treated as absolute categories. Thus it makes time an absolute and brings in the difficulties about a real beginning and end of time. Process and change cannot be thought out, unless in reference to a permanent and unchanging "substance". "It is only the permanent that can change," as Kant said. Heracleitus himself, the philosopher of the universal flux, had his "fire ever-living, thinking" as the one principle pervading all things: and it was only his sophistical successors who tried to work with the concept of absolute change and who found themselves logically compelled to give up saying anything at all. Our popular "Sophists" of the present day talk of "Evolution evolving" and of the "developmental process" as if it were an absolute. But it is only the carelessness of popular language and the use of abstract nouns as subjects which allow such phrases to pass current. Evolution is the appearance or manifestation to us of a timeless reality which includes and transcends change.

> Our Playwright may show
> In some fifth act what this wild drama means.

Even the image or picture in these lines of Tennyson's helps to lead one into a more philosophical conception of the world, than the belief in Evolution as the absolute. The Playwright may show us his meaning only at the end of a long process, but if he is a perfect playwright, his thought, though only bit by bit revealed to us, pervades the whole of his work.

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## II.—FEELING AND THOUGHT.[1]

By Alexander F. Shand.

### I.—The Ambiguity of 'Feeling'.

The problem of psychology in dealing with its complex subject-matter is, "first, to ascertain its constituent elements".[2] This fundamental problem has been discussed times without number and the conclusions reached are on the whole unanimous. Psychologists are generally agreed that Feeling, Thought and Conation are the universal and therefore inseparable constituents of all mental states. But they do not always attach the same meaning to the terms; and it has been noticed that this ambiguity is especially prominent in the case of the first term, Feeling. Some authorities attempt to confine it to the expression of pleasure and pain. Others use it with a more extended significance to include indifferent feelings neither pleasurable nor painful, such as a neutral excitement would be supposing it were a fact. Others urge that Feeling must at least include the common element of pleasure and pain, an element that it seems can be neither one nor the other.

In the last place, Feeling is used in a sense which the experiences of pleasure and pain, the emotions, passions and sentiments have played no part in determining; but the common meaning of the verb 'to feel' has supplanted the influence of the class that we name 'The feelings'. We feel warm or cold. We feel the rapid movement of thought or its sluggish state; we feel the vigour of our resolutions, the eagerness of our desires, and also our weakness and inconstancy. In this sense, Feeling is taken as the equivalent of "immediate experience,"[3] of "sentience or anoetic consciousness,"[4] of the mere fact of "presentation" in distinction from "discursive thought" which identifies the character of this feeling or presentation and refers it

[1] Read before the Aristotelian Society.

[2] Prof. Ward, "Psychological Principles," Mind, viii., p. 465.

[3] F. H. Bradley, Mind, N.S., vol. ii., p. 212.

[4] G. F. Stout, *Analytic Psychology*, vol. i., p. 50.

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to an object. And so the special sensations have to be regarded as varieties of this Feeling, those varieties not interpreted by thought to be subjective, but on the contrary referred to external objects. It is at this point in the logical extension of the term, as the equivalent of immediate experience, to include the special sensations as also immediately experienced, that the technical and popular meanings divide. For in the ordinary use of the verb there is a markedly subjective reference. We do not 'feel' a colour or a sound. Our sensations are objective; our feelings subjective; but, in this technical sense, Feeling is simply experience, and its objective or subjective reference an affair of thought extraneous to it. But, here as elsewhere, the popular use is not consistent. People say, 'I felt you were there before I saw you,' or that they "feel" the presence of their dead for some time after their departure from this life. This feeling is not the objective experience it is taken to be, unless there be a spiritual or telepathic sense; but it is something so like the immediacy and convincingness of sensation that no other term so well expresses the meaning.

While in the popular meaning of the verb 'to feel' direct or immediate experience is a prominent constituent, thought is not excluded. It is merely less prominent, and to feel in the popular sense is to think, and to identify however vaguely what we are feeling. Sometimes it is a process of thought we identify, or a resolution, or a doubt, or warmth, or a spirit-presence. But, in the technical meaning of the term, we seek to exclude this second constituent 'thought' and confine the term to the single constituent 'feeling'. Thus 'thought' and 'feeling' in this strict sense are mutually exclusive in their meaning, though in the actual psychoses the two constituents which they signify may be inseparable and complementary.

Feeling, then, as immediate experience is not what is meant when we speak of 'The feelings'. What these suggest to the mind, what is found under this heading in text-books of psychology, is the class formed of the emotions, passions and sentiments, and all varieties of pleasure and pain. But organic sensations are sometimes included in this class, partly because of their close connexion with pleasure and pain, partly because of their subjective character; for through an insufficient analysis no consistent use of the term is reached. "Pleasure-pain" is not essential to this class if there be neutral feelings; but in common cases and in the common meaning it is the prominent feature.

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## II.—The Antithesis of Thought and Feeling.

While "immediate experience" is not what is meant by the fundamental class of the feelings, feeling as immediate experience may also claim to have a fundamental character. If it does not form an ultimate class of mental facts, it is held to enter all of them as an ultimate constituent. What is the character of this constituent? Can we analyse it? Can we define it? What is ultimate we cannot in the strict sense define: but we can reach the same end and in a broad sense define it by contrast. We can hardly think of Feeling without recalling to mind its contrary. For it suggests the antithesis of thought; and the character of each becomes clear and definite in contrast with the other.

Thought in a broad sense is defined as consisting in "objective reference". Feeling is distinguished from it "because it involves no objective reference".[1] It has been noticed that, as far back as Reid, we have a clear expression of this negative character of feeling. "There is no difference," he says, "between sensation and the feeling of it—they are one and the same thing."[2] Again, he says, in sensation as distinguished from perception, that is to say, in 'feeling' in the present sense of the word, "there is no object distinct from that act of the mind by which it is felt".[3] And Mr. Bradley expresses the same conclusion: In feeling, there is not "anything like a subject and object".[4] The "objective reference" of thought, in contrast, is the reference of this very feeling or presentation to an object. What is this object? Is it some other feeling or presentation? The answer that has come down to us from Kant is that it cannot be. The object that we mean and intend "cannot be a modification of our own consciousness at the time we mean or intend it".[5] We may put the conclusion in another way. Of the two universal constituents of "noetic" consciousness, feeling and thought, the one is not, and as immediate experience cannot be, the object of the other. At first sight, this theory may seem to deny the palpable fact that we often make our present feeling the object of our present thought. But this apparent contradiction illustrates an inconvenient use of the term 'object' rather than a denial of this fact. The present

[1] *Analytic Psychology*, G. F. Stout, vol. i., p. 41.

[2] Reid's *Works*, Hamilton's edition, vol. i., p. 310. Quoted by Mr. Stout, *op cit.*, p. 51.

[3] *Works*, p. 310. [4] Mind, xii., p. 365. [5] G. F. Stout, *op. cit.*, p. 46.

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sensation or feeling about which our thought turns is not called 'object'; but the objective reference precisely consists in the turning of thought about this feeling. In this reference, thought inevitably transcends feeling and invests it "with attributes and relations which are not themselves immediately experienced at the moment".[1] If we choose to call our present feeling, when we think about it, the object of our thought,—which from the logical point of view is called the subject of the proposition we are in process of forming,—it follows none the less that in order to think about this present feeling we must transcend it and refer it to something beyond itself. We identify a present sensation as of some colour or of some shape; and this is a reference to other objects with which it has points in common. These may have been experienced in the past: they are not experienced at the moment.

## III.—The Relation of Thought to Feeling.

To identify a present sensation we must discriminate it from its context. "All processes of thought are *eo ipso* processes of discrimination."[2] The feeling or sensation must lend itself to our discrimination. We cannot by sight discriminate objects in the dark, and, being unable to discriminate, cannot identify them. A sensation must present a sufficient difference from its context for us to be able to discriminate it. And in discriminating, as in identifying, our thought transcends the sensation. But the thought-reference is different in the two cases. In discrimination it suffices for thought to refer to the context of the sensation, which like it is immediately presented, and to distinguish the sensation from this context.

Thus "thought is discriminative only so far as it has presentation for its vehicle,"[3] and so far as this presentation is sufficiently differentiated. This is true whether we are or are not thinking of our sensations. In perception we may be thinking of external objects; but it is through our visual, tactile and auditory sensations that we are able to perceive them. However objective our thought, however much removed from the attitude of the psychologist or painter, we still in some measure discriminate and identify these sensations. We merely do not regard them as our sensations. We take them to be the colours and shapes of external things, and the sounds which they produce, and the solid resistance which they offer to us. It is only the changes which the object

[1] G. F. Stout, *op. cit.*, p. 44. [2] *Ibid.* [3] *Ibid.*

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undergoes according to our position and distance from it that we frankly acknowledge to be subjective. But from the psychological point of view we must reclaim from the external object, not merely these its changing appearances, but its colour and shape, and all that we directly experience in it, as indubitably our sensations. And in all perception we are constantly discriminating some sensations, though we neglect the changes of visual magnitude. We identify the kind of object we perceive through identifying the sensation of its shape or colour, or the sensations of its movement. Through this constant dealing of thought with what is presented to it or directly experienced, we are able to think of other qualities which are not presented, and to form an accurate judgment of what the thing is. It is probable that the farther we went back in the mental history of the race or the individual the more should we find thought in perception engrossed with its immediate experience, though it would still less than in the present identify this experience as its own feeling. With a weaker and less independent thought, with a thought bound to sensation and sensation itself a recent acquisition, the less could we fill out the sensory presentation with the qualities which a richer experience discovers to us. The very tables and chairs which give us so many changing appearances according to our position, which we have connected with such different uses, to the infant must be much less complex unities. The mere sensations must engross him, and only the bright and intense among them, or those to which his attention is directed through hereditary bias, or those which move rapidly through the visual field. It is to these sensations that what little thought he has is directed. It is these immediate experiences which he discriminates and identifies.

## IV.—The Feeling-Continuum.

If we study the field of vision we do not find any absolute breaks in it. Its dividing lines and its blanks, its empty and its filled appearance, are still nothing but visual sensation. It is a genuine *continuum*. And our organic sensations have also this character of a mass in which we can neither find a breach nor make one. Both are *continua:* but the break which cannot occur within the limits of each is found between them. There is no greater gulf in nature than this between the field of vision, which our uncritical thought interprets as objective and independent of us, and the mass of organic sensa-



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tion which we think of as wholly subjective, as exclusively our own property. But apart from the opposite interpretation which our thought places upon these distinct masses of sensation, in themselves as mere experiences or feelings they present the deepest contrast. The colours and gradation of light and shadow of the field of vision wholly disappear as we enter the mass of organic sensation, and as we depart from it we lose its specific character penetrated with varying degrees of warmth, and can find no trace of it in visual sensation. When we pass to auditory sensation we come upon another of those deep gulfs in our experience, whether we approach it from the side of organic, or from that of visual sensation; and we have this difficulty in dealing with it. Are the sounds we hear detached existences forming no *continuum*, discrete sensations with real gaps between them, or is there an auditory as there is a visual *continuum?* Do these sensations of sound float like colours in a medium of their own? Do they float in the silence and contrast with it? And as there is a field of vision, ever present, from which in the darkness all colour passes, is there something like a field of silence into which sounds break and which persists when these pass from it? "Into the awareness of the thunder . . ." says Prof. James, "the awareness of the previous silence creeps and continues; for what we hear when the thunder crashes is not thunder *pure*, but thunder-breaking-upon-silence-and-contrasting-with-it."[1] And so the silence creeps into the thunder and continues through the succession of sounds as their true bond of continuity, not merely in their succession and between their pauses, but each isolated sound contrasts with the silence around it. On this view, silence is no more a mere negation than is darkness. It is a positive sensation. And between the degrees of sound and silence, as between the degrees of darkness and light, there is a character which both have in common, though in degree unequally distributed.

If the human mind is possessed of at least three *continua*, what is the relation between them? Are they just masses of sensation continuous in themselves but with no bond of connexion between them, or where the specific character of each vanishes at the limits of each, is there a deeper character hidden in the gulf between them? Throughout the darkness and the light, the sound and silence, the mass of organic sensation, and within their deepest con-

[1] *Op. cit.*, vol. i., p. 240.

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trasts there is the all-pervasive character of "presentation" of "immediate experience," of feeling. Within us is "a continuous mass of presentation in which the separation of a single element from all context is never observed".[1]

Feeling is then a *continuum* which contains *continua*, and these *continua* in relation to one another are discrete masses in respect of the specific character of each, but, in respect of that universal character they share, they form one *continuum*. But is feeling continuous with itself through the succession of time? Is it never broken in the life-history of the individual? This is a question we might answer if we could observe ourselves in states of sleep and so-called unconsciousness. But as in such states thought is either interrupted or incapable of voluntary attention, so through its absence or inefficiency we cannot verify the continued existence of feeling. We may find ground for assuming this as a working hypothesis, as the physicist assumes the continued existence of matter. This is the utmost we can expect. But whatever be our attitude to this question feeling as interpreted by psychological analysis, as statically considered, is a *continuum*: and it is continuous through the stream of change, so far as we can directly observe it.

What is the relation of this feeling-*continuum* to the thinking of which it is the vehicle? Do they together form one *continuum*? Can thought itself possibly be feeling? If not we seem face to face with a psychological dualism as absolute as the dualism of scholastic theology.

From another point of view the relation is a perplexing one. Are all the feelings actually present in the mind identified and discriminated by thought? Do their differences precede our discrimination of them; do they come into existence at the moment of our discrimination; or are these differences and our discrimination different names for one and the same fact?

## V.—The Hypothesis of the Relative Priority of Feeling.

"It is easy to show," says Mr. Stout, "that there is by no means a complete coincidence between the existence of presentations and their significance for thought. . . . At this moment I am thinking about psychological topics. I receive at the same time a multitude of diversified impressions from surrounding things which certainly enter

[1] F. H. Bradley, MIND, xii., p. 357.

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into my total experience. But if I refer them to an object at all I do so in a very indeterminate way. My thought discrimination is very far from keeping pace with the differentiations of the sensory data as immediately experienced."[1] But where is our evidence for concluding that, beside what we do discriminate in a total experience, there are other differences contained in it which we do not discriminate? We have a direct knowledge only of those differences which we do discriminate. The other differences supposing them to exist are experienced, but not known: how then can we know them to exist? For feeling gives no information about itself. It is blind, and like everything else in the world can only be interpreted by thought.

It is generally held by psychologists that attention is a selective process and that, outside its narrow area, there is a wider area of inattention. The moment we attempt to make a direct assertion about any item within this wider area, we are met by the objection that, in the process of making it, we have brought this item within the area of attention. The only method we have for reaching any conclusion about this wider field or even for justifying our assertion as to its existence is to deal with it through memory. As any psychosis is passing away and giving place to a new one in its stead, we must ask what there was in the former over and above the clear attentive thought which we can recall. But over and above this clear thought which we can recall, there is nothing more than a vague and untrustworthy memory. While occupied in our work we may remember hearing some one put coals on the fire or the rattling of a cart by the house. But it is doubtful whether these obtrusive events were in the field of inattention. It is more probable that they momentarily deflected attention to themselves.—If we have this difficulty in demonstrating anything of the field of inattention, to which there is often supposed to be some vague thought present, how much greater must be our difficulty when we attempt to demonstrate the existence of differences not in any degree thought of or discriminated!

There is then no direct evidence for asserting the existence of anything in consciousness not in some degree discriminated or thought of. What indirect evidence can we find? There must be something to account for the belief of men in more in their minds than they can discriminate. When we momentarily attend to some organic sensation, we believe

[1] *Op. cit.*, vol. i., p. 48.

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that it preceded our discrimination. And in this way we come to believe in the field of inattention. We make momentary excursions outside of the ordinary objects of attention to objects that we do not commonly notice—the rumble in the street, the ticking of the clock, the pressure of the seat on which we are sitting, the vague visual sensations outside the focus of vision, the mass of organic sensation; and we infer that whatever among these various sensations seems constant, and not due to a present change in our environment, preceded that moment's thought which revealed them to us, and will continue in the future as in the past independent of it. For if these apparently constant facts do not precede our momentary thought of them, we seem driven to the conclusion that the thought which discovered created them. And we know that our thought cannot create them. We cannot make what differences we please. Our judgments of subjective facts are no more capricious than our judgment of objective facts. The sensations we discriminate "determine our judgment": they "are not created by it".[1]—That something determines such judgments is indubitable; can we infer that they are determined by feeling as relatively prior to and independent of the thought which thinks it?

## VI.—The Exclusively Physiological Hypothesis.

There "are not three things in question—conscious processes, unconscious mental processes, and merely physical brain-changes, but only two, on the one hand conscious processes and on the other hand nervous processes without consciousness . . . ".[2] In every state of noetic consciousness there are thought and feeling and there is precisely that amount of feeling which is discriminated or thought of. There is no more. There is no unconscious feeling such as seems to precede our clear discrimination. There is no feeling present that we do not consciously discriminate. The moment before we discriminated this feeling it was non-existent; and that which constrained our thought, so that we had no choice but to discriminate this feeling, was the brain-change which caused it. This is the second hypothesis we may adopt for interpreting the facts of our mental life and the conviction that the thought which discriminates cannot create these facts. Like the first, it may

[1] G. F. Stout, *op. cit.*, vol. i., p. 49.
[2] W. McDougall, Mind, N.S., vol. vii., p. 20.

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assume a confident air as if it rested on direct evidence; but neither is better than a hypothesis. We cannot prove by observation the existence of feelings in the mind undiscriminated nor their non-existence. This physiological hypothesis is narrower and more dogmatic than the first. The first is ready to admit that for every undiscriminated feeling there corresponds some brain-state. The second denies the undiscriminated feeling and posits the solitary existence of the brain-state. It is more the hypothesis of a physiologist than of a psychologist. In psychology as in physiology, we try to interpret the facts in accordance with the terms of our science. But this hypothesis excludes a psychological interpretation of the facts: not on the ground that a psychological interpretation cannot be furnished, but on the ground that a physiological interpretation can be. But we have the right and duty to give a psychological explanation of the facts wherever we can; and neither science has the right to exclude the complementary explanation which the sister-science from its standpoint legitimately furnishes.

On this hypothesis every mental process or factor of a mental process that we identify and discriminate by thought comes into existence at the precise moment of this thought-discovery, and endures only so long as it remains thought of. When some movement takes place on the margin of the visual field and we turn our eyes in the direction of the movement and accommodate them for the object, we know that this physiological process does condition the uprising of a number of sensation-differences which before were non-existent. The indefinite shape of the object gives place to a definite shape: a number of details appear which were not present in the confused state of the sensation. Why should this not be the rule in all cases, and the movement of attention be accompanied by a physiological process which creates the mental fact at the moment we attend to it? But we can discriminate the cases in which the mental event is almost synchronous with our discrimination from those cases in which it appears to have preceded it by an indefinite time. New sensations are constantly thrust upon us; and we identify them as new events. Their character may be old and familiar, but their occurrence is fresh. Other facts in our experience we identify as old and not new occurrences. They do not come with any shock of surprise to us. "Does not every sudden shock, appearance of a new object, or change in a sensation create a real interruption, sensibly

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felt as such?"[1] The continuity of our lives is not broken by such new events, but we sensibly feel the shock of them.

In cases of lingering illness and where a pain of low intensity is an almost constant accompaniment, the sufferer will say that he is able to forget it at times, using the word 'forget' in reference, not to past feelings of pain which he no longer remembers, but to present feelings of pain which he ceases to discriminate. "It is always there," he will say, "but at times I forget it." The physiological hypothesis can offer no interpretation of this experience. On its assumption we must maintain that pain as a present fact was not for a moment forgotten, and that when it was forgotten, it had ceased to exist. And it can offer no interpretation of the distinction we constantly draw between mental events which we identify as new occurrences and those which seem either to be constant factors in our experience or at least to have been some time present in it. How is it that all mental events, at the moment we discriminate them, do not strike us as new and equally new occurrences, if a moment before they were mere brain-states? How is it that while we treat some of them as old events, we treat our recollection of them as a new event? What is the meaning of this delicate distinction which popular thought, not given to subtlety, yet habitually draws? As with a fresh throb in the intensity of pain the sufferer is recalled to his suffering, he exclaims: "Ah! this terrible pain, will it let me forget it for so short a time?" The pain is worse. Its higher intensity is a new change in its process, which provokes anew his recollection of it. The feeling of the pain he identifies apart from its changed degree as old, but his recollection of it as a new event. He was mistaken, he should have said that it was all new, equally new as a mental occurrence, the feeling and his recollection of it. He should have said what he sometimes says, though significantly not always: "Ah! this terrible pain has come back, will it leave me for so short a time?" There ought to be no discrimination between the two cases, and the existence of this discrimination as a fact is that which the present hypothesis is unable to explain.

This example of painful experience is no exceptional case. What is true of it applies also to our discrimination of organic feelings, marginal imagery, and in general all factors in our experience which are normally too vague and too unimportant to attract our attention. When we discriminate them, we are aware that they are old factors in our experi-

[1] Prof. James, *op. cit.*, vol. i., p. 166.

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ence. Our discrimination alone feels like a new occurrence; whence we infer that they were prior to our discovery. The premises of this inference are not unexceptionable evidence. It is easy to object to them; but it is well to remember that every distinction we draw within our experience between what is constant and changing in it, between what is old and new in it as an event, is substantially of the same character.

## VII.—The Hypothesis that Feelings which appear Undiscriminated are Vaguely Discriminated.

Feelings which appear to precede our discrimination of them, so far as they do precede it are not reduced to mere brain-states, nor are they "anoetic" feelings, they are discriminated, but thought of so rapidly, so vaguely, so inattentively, that no memory of them remains.[1] This is the third hypothesis. Because of this rapid and complete forgetfulness we must not infer that these differences are undiscriminated; but the argument is double-edged and gives us no warrant for concluding that they are discriminated. It is, then, like the others, a mere hypothesis of what does or does not take place in processes inaccessible to direct observation. There are two prominent conceptions in this hypothesis: the one is of vague, rapid and inattentive thought; the other, of rapid forgetfulness. Dreams furnish us with familiar examples of this kind of thought, so vague, so rapid, that as soon as we wake we find ourselves unable to recall them. Yet the very effort shows that our forgetfulness is not complete. We remember that we have dreamt, that we have been consciously aware of some train of images, though what these images were or what was our thought-attitude to them, we cannot remember. But on our present theory if these images had persisted they would, as long as they persisted, have been the vehicle of the conscious thought which discriminated all that was present in them. No memory would be required to assure us of the presence of this thought: no forgetfulness could overtake it, so long as it remained present. Thus "our own bodily position, attitude, condition, is one of the things of which *some* awareness, however inattentive, invariably accompanies the knowledge of whatever else we know".[2] For the presence

[1] Compare James, *op. cit.*, vol. i., p. 165.

[2] Prof. James, *op. cit.*, vol. i., p. 241.

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of this awareness we have not to rely upon an act of memory. We have only then to observe the fact and verify its existence. But it is precisely due to the fact that we cannot verify its existence that we owe the construction of the present hypotheses. We are not consciously aware at every moment of our thought-life of all our organic sensations and all their differences and all the changes they undergo,—still less of the subtle differences and momentary changes of the thought itself. We are only aware of some of these sensations and some of their differences and some of the changes they undergo, sometimes, when pain, pleasure, emotion or psychological experiment recalls us to their presence. But it is all of them of which on the present hypothesis we must be conscious.

Like the second hypothesis this one must also deny the spontaneous testimony which ordinary people give as to the forgetfulness of pain. We think, when the pain is of a low intensity and the attention becomes absorbed in a pursuit disconnected with it, that, during shorter or longer intervals, we may completely forget the presence of pain. This we must put down as an illusion of memory. At the moment at which we "recollect" the presence of pain, we are only clearly aware of what we were vaguely aware the preceding moment. The inattentive process of thought has simply passed into an attentive process. We then neither forget the presence of pain, nor is our recollection of it a new event. But our spontaneous judgment on the contrary is that we do forget the presence of pain, and that our recollection of it is a new event. The hypothesis contradicts and cannot interpret this spontaneous judgment. The judgment may be false; but we cannot get closer to the facts than its indirect assertion of them. But do we distrust this judgment because some other spontaneous judgment contradicts it? No: this judgment is contradicted by a mere hypothesis whose function properly understood is to interpret, not to contradict it. So we fail on this hypothesis to interpret the distinction we draw between the pain as an old event and the recollection of it as a new event. If both are of the same age and have the same life, why do we not identify both as old events or both as new events? The ordinary man believes that he can distinguish between the shock of a new event and the mere continuing in the mind of a former experience. This distinction we must assure him is not to be trusted, inasmuch as it leads him to identify a present feeling as old and his identification of it as new, and

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through these fallacious premises to impose on the logical mind the false conclusion, that this feeling prior to his identification was an "anoetic" experience, and, in the ordinary sense of the term, an unconscious feeling.

## VIII.—The Meaning of Vague Thought.

When we say that we have a vague thought of something, we mean that our thought is inadequate to its object. Whether the object of our thought be enveloped in a physical or moral darkness, there we can but vaguely discriminate it or identify its character. We know that there is more detail in the object than we discriminate, and that our identification of its character is abstract and incomplete. And it is due to this inadequacy of our thought to its object that we call our thought vague. It is not due to the character of its object. The imagery on the margins of the visual field is at its maximum of vagueness; but it does not follow that our thought of it is vague. If our attitude is 'objective,' if we are trying to guess what the object so vaguely presented to us really is, our thought of this object may be most vague, hesitating and inadequate. If our attitude is psychological and subjective; if we make the visual imagery itself our object, and have an adequate thought of its vague character, its indefinite colours, its misty outlines, it would be a misuse of words to call our thought vague. On the contrary, we have the clearest thought of the peculiarities and character of this marginal imagery, because we have an adequate thought of it.

If we then have so often a vague thought of what is taking place in our minds, if the rapid change and the delicate differences of the thought-process within us, and the less intense and vaguer sensations, almost wholly escape us, our thought is vague because it is inadequate to its object, because there is so much more in the psychosis of the moment than it discriminates. Is this the vague thought which the third hypothesis conceives as lying outside the attentive process, and accompanying all the experiences which are not in the focus of attention?—then this hypothesis is suicidal. In analysing its conception, which it has so inadequately understood, we have transformed it into the conception of the first hypothesis.—There is more detail in our experience than we succeed in discriminating. We are converted to the hypothesis of the relative priority of feeling.

But if we maintain our third hypothesis, we must be able

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to give some other interpretation of the vague inattentive thought, so rapidly forgotten, which is its central conception.

Our thought is sometimes vague and confused, especially where it is dealing with a new and difficult subject. But to any man who loves clear thinking these states of confusion are painful and oppressive. They are not like the vague thought of this hypothesis rapidly forgotten, like many painful experiences they carry a good memory. Some, on the contrary, are not pained by vague thought, it pleases them and they live contentedly in it. They have a partiality for difficult subjects, and especially for metaphysical speculations, which appeal to their love of mystery. When they speak you recognise that their thoughts have no definiteness in themselves, and no coherence among each other, converge to no conclusion, and might without injury be arranged any way you please. But their thinking, such as it is, occurs in an attentive process, and cannot be that inattentive thought which the hypothesis has in mind. As an attentive process, clearness of some kind is essential to it;[1] and they are clearly aware of the darkness and mystery of the subject which fascinates them. Their love of mystery tends to foster it. The sentiment of mystery conquers the love of truth. They preserve the obscurity of their subject, in order to be clearly aware of its mystery. This thinking is only vague so far as its object is taken to be that adequate knowledge in relation to which its present thinking is vague because inadequate; but it is clear so far as its object is that sensible mystery directly present to it which it broods over and fosters. But this attentive process, and this thought essentially clear in relation to the object of that process, this thought which carries a good memory, cannot be the vague, inattentive thought, rapidly forgotten, which this hypothesis has in mind.

Is such a thought anywhere a fact within us, a thought vague, inattentive, rapidly forgotten, which yet adequately discriminates all present experience in the mind? Let us assume it to be a fact. Then all changes and gradations in the mass of feeling, are adequately discriminated, so that nothing present escapes. But in logically developing this conception of the hypothesis, the vague thought which it posits outside the area of attention has been transformed into the clearest thought we can possibly have. For if all gradations in the mass of organic feeling with all its vague

[1] "An Analysis of Attention," MIND, N.S., vol. iii.

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differences are discriminated, with the varying warmth that pervades it, with the pressure of objects on different parts of the body which almost melts into it, with the pleasurable or painful tone which penetrates its parts,—as that the head aches while the feet on the fender feel warm and comfortable,—if all these differences are accurately and fully discriminated, then we have that clear and adequate awareness in the inattentive process which it is our ideal to reach in the attentive process, to which we there make some approximation. In logically developing the hypothesis on this side of its conception we have transformed its inattentive process into an ideal process of attention.

## IX.—The Identity-Hypothesis.

Feeling and the conscious awareness of it, the difference between feelings and their discrimination in thought, are numerically one and qualitatively the same. Language here as elsewhere leads us into error. We have distinct ways of expressing the same mental fact, one passive, the other active. We speak of presented difference and our discrimination of it, of sensations and our consciousness of them; and it is almost impossible to escape from the illusion which this habit of language fosters. We regard it as indisputable that thought and immediate experience are distinct mental constituents. We introduce a sophistical dualism in the mind.

This identity-hypothesis would hardly obtain a hearing if it maintained the absolute identity of thought and immediate experience. A restricted interpretation of it alone concerns us. Where "we look before and after," there presentation and thought are not the same: where and so far as we deal with presented experience, the presented experience is all. There is no second element, no awareness of it. It is the awareness. Thought only begins where this awareness, this presentation ceases.

On this hypothesis we cannot maintain that our "thought-discrimination is very far from keeping pace with the differentiation of the sensory data as immediately experienced". Whatever difference exists in the mind that must be discriminated. We must be consciously aware of this difference. The difference and our awareness of it are the same.

There is one fundamental fact which all of these hypotheses have to interpret. In all perception, and in every judgment about our sensations, we must recognise, if we think of it,

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that our thought is constrained, that it cannot make the fact. This presented difference between two colour-sensations in the centre of the field constrains me to accept it as the difference between blue and green. I cannot make it other than I find it. When we pass to other mental facts the amount of the constraint may be sensibly diminished. I can make them other than I find them; but I try not to. The delicate, quickly changing process of thought, upon that I can foist almost any interpretation. Its differences may not be as my discrimination of them. They may pass undetected. I may discriminate where there is no difference. Still here too there is something of constraint, some touchstone of the truth and adequacy of our discrimination; and the greatest psychologist in this respect is he who is most sensitive to it.

In all this, an open mind must surmise some dualism of elements, functions, aspects or whatever you please to name them. But this hypothesis, as it rejects the dualism, finds itself in the same straits with the physiological hypothesis which likewise denies the existence of any undiscriminated mental factors—of any factor of which we are not, in the ordinary sense, conscious. Hence, like this hypothesis, it cannot interpret, it can only deny those spontaneous judgments of ordinary thought that pain and other experiences, while they still subsist in the mind, may be forgotten, that as we recollect them we can distinguish our recollection of them as a new event from their existence as of relatively longer standing;[1] that the common mind has grown sensitive to a difference in its experiences and that common thought submits to this constraint and interprets it,—the difference between persistent factors in its experience which it habitually forgets, like organic sensation, and the irruption into experience of something new as event, however familiar in character.

There is an experiment in attention which should convince us of the essential duality of feeling-difference and thought-discrimination. While the eyes remain accommodated for one object, we direct attention to the marginal images on the right or left of the field. Through this transference of attention we become clearly conscious of the vague difference between these marginal sensations with their misty outlines, while we become less clearly conscious of the clear differences in the centre. Before the experiment we may be as unaware of marginal as of organic sensations.

[1] See *ante*, p. 487.

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Suppose even that we are vaguely aware of them with all their differences, still how great a change between the obscure awareness and the clear awareness of these sensations! The clearness of the sensations and that of our awareness of them do not correspond, hence they cannot be the same: and the essential duality of these elements we bear witness to whenever we speak of the *movement* of attention over the visual field while that field itself remains constant.

## X.—The Hypothesis of Double Consciousness.

The experiments to which many hysterical patients have been subjected have brought to our notice facts of which the hypothesis of double consciousness is given as the explanation. Each consciousness may develop a distinctive character of its own. And these personalities do not appear always to be successive, if the facts be rightly interpreted, they are sometimes co-existent.[1] While the first consciousness maintains a conversation with one individual, the second self writes intelligent answers to questions which another individual whispers from behind, and performs acts which are held to involve intelligence. This secondary self, according to this interpretation, cannot be anoetic. It is more than a separated tract of sentience. It has its centre of thought and attention distinct from the thought and attention of the primary self. In any normal individual an attempt to carry on two simultaneous operations both requiring selective attention for their performance would lead to an interruption of one or the other, and an oscillation of attention between them. In some hysterical women this does not seem to be the case.

This hypothesis of Double-Consciousness in its restricted application is not an alternative to the hypothesis of the Relative Priority of Feeling. For as there is much detail of sensation which the primary self, at any given moment, fails to discriminate, so it is reasonable to suppose that the secondary self, attentive to the commands or questions of the operator, overlooks, like the primary self, such irrelevant details. Before the one hypothesis can be set up in opposition to the other, we must broaden and develop it so that (1) every one must be held to possess a secondary consciousness

[1] This is still in dispute. See *L'Automatisme Psychologique*, Pierre Janet, 2me partie, ii.; *Les Alterations de la Personalité*, A. Binet, 2me partie; *Subliminal Self or Unconscious Cerebration*, by F. Podmore, *Proceedings of Psy. Soc.*, vol. xi., part xxviii., p. 325.

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co-existing with the primary, that (2) discriminates all the detail of immediate experience which the primary fails to discriminate, that (3) never relapses into mere sentience, as the first appears to do in deep sleep, in cataleptic trance, in fainting and anæsthesia. That a secondary consciousness exists in each of us possessed of this marvellous talent of subjective observation is a hypothesis which no known facts justify and which has never been advanced by any scientific intelligence.

In judging between these different hypotheses, in deciding which of them we should adopt for interpreting this enigmatical side of our mental life, we have a clear principle to guide us. We have to select that hypothesis which faithfully interprets the facts, without having to deny or distort them. Mental facts as a rule are not "stubborn things". They are as delicate as the wings of an insect, and must be as delicately handled. We have only found one hypothesis which is in harmony with this principle—the hypothesis that feeling, so far as each individual feeling is concerned, is prior to and independent of the thought which discriminates it. In every consciousness thought may be present to feeling, and the two constituents complementary and inseparable; but thought is not present to every feeling, nor to every difference between feelings.

## XI.—Feeling as a Continuum Containing Relations.

As our "thought-discrimination is very far from keeping pace with the differentiation of the sensory data as immediately experienced," so we fail to identify the common characters which pervade these same sensory data. Like their differences, we are convinced our thought discovers, but does not create, the common characters of feeling,—the warmth which commonly pervades all but the outlying parts of organic sensation, its faintly pleasant or painful tone, the quality of the sounds which meet our ears from the crowded street, the heavy rumble of the omnibus, the groaning and creaking of brewers' drays, the quick rattle of the cabs, and under present conditions of light and atmosphere, the actual colour of our visual sensations. And not only does our thought not create these several qualities of sensation, but it is not synchronous with them. A moment before our identification they were not, any more than the undetected differences, mere brain-states. They exist in the sensations though our thought-reference be absent. While we identify some other class-character,

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they await our later identification; and our whole life may pass without discerning them. And in thought itself while it exists in constant change, how many of its fleeting and subtle characters do we detect? Do we detect the changes in a question as it passes through doubt into the answering judgment? Do we detect at each moment the change of the judgment, its problematic, hypothetical and disjunctive phases? There is a wealth of common characters in the mind which, at any given moment, we fail to identify.

It is a curious fact that those psychologists who have been foremost in the enunciation of feeling as at least relatively prior to thought, have either been silent concerning the presence of relations in feeling or have explicitly denied them. Thus Mr. Bradley says there are "no relations and no feelings, only feeling. It is all one blur with differences, that work and that are felt, but are not discriminated."[1] But if the differences persist in it undiscriminated, why should not the relations involved in them, in their co-existence, in their change, and in the fact that these differences "work" and have a tendency, and the relations involved in their common character of feeling, why should not all these relations be independent of our thought of them?

The atomistic psychology of Hume and the Mills produced two contrary explanations of the unity of the mental life, one of its own and known as the laws of association, the other produced by its German adherents. Those who were deceived by the metaphorical language of Kant posited a mysterious activity in the mind, the pure Ego, whose function it was to produce unity where without there would be only a discrete manifold. Hence the phrase, the "relating activity" of the Ego, and the belief that all relations of the sense-manifold were due to this activity. But with altered premises comes a changed conclusion. "There is no manifold of co-existing ideas: the notion of such a thing is a chimera."[2] The most rudimentary mind is a *continuum* and not a discrete manifold of sensations; and this mysterious activity is no longer required to unite what is already united.

## XII.—Thought-Reference as Exercised within the Limits of Immediate Experience.

A *continuum* of feeling filled with difference and other relations, pervaded by common and distinctive characters,

[1] Mind, xii., p. 363. [2] James, *Principles of Psychology*, vol. i., p. 278.

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will suggest to us the possibility that thought may sometimes find exercise for itself within this complex unity. What will thought gain by its more ambitious and developed attitude? It will but have a wider range of objects from which to select, a greater multitude of distinguishable characteristics, a fuller insight into the conditions on which events depend, a more complex attitude, and the thought of an infinite whole which embraces all realities. That in adult life we do apparently transcend the whole of immediate experience, that in thought, desire and volition we think of objects and ends which are not existent facts in present experience, is certain: that the most rudimentary thought formed in the infant or animal mind assumes at the outset this attitude, is doubtful. And our doubt will be increased if we can show that, in the mass of feeling and the sensations of the special senses, there is present to thought all the material which it requires for the adoption of its simplest thought-attitude. For this mass of feeling is not a statical *continuum*, but a process of change continuous with itself through successive moments. The limitation of thought to immediate experience does not confine it to any mathematical point of time within which its reference would be impossible. The psychological present contains a genuine portion of the stream of change. And in this psychological present are differences and vague changes which we recognise that we fail to overtake in thought. The effort to discriminate them will then be an exercise of thought within the limits of immediate experience.

But can thought be confined to discrimination alone, must we not also identify in some degree, in the simplest way, the sense-material discriminated? And wherever we identify the character of an experience, we inevitably transcend it. For its character is something universal which cannot in thought be confined to it, which obliges us to refer to objects "which are not themselves immediately experienced at the moment".[1] — Thought universally refers the object or presentation from which it starts to other objects outside of this. We think inevitably of the relation of identity of this first object to them, or of its difference from them, or of its various other relations. But while we necessarily transcend the first object or presentation, we do not necessarily transcend the entire complex of immediate experience. Here is a wealth of 'items' already present in the field of immediate experience with the character of 'feeling' which

[1] G. F. Stout, *op. cit.*, vol. i., p. 44.



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they share in common and the distinguishable character of their groups. Why should our thought not be confined to them, to their common character, or to the character of their groups? Doubtless there are countless other items not presented which also share in this common character. Why must our thought be troubled with them? It has already a number among which its "discursive" thought can roam and verify the presence of a common character.

## XIII.—The Psychological and Metaphysical Conception of Thought.

In the work of the older writers, the psychological and metaphysical treatment of thought were often confused. Thought, according to Kant, was objective reference, and if we take the semi-psychological interpretation which has often been placed, but now held to be mistakenly placed, on his language, then our sensations were, in the first place, subjected to the pure forms of space and time and then transformed into objects through the action of the categories or universals. Thus thought seemed to consist, in this half-psychological conception, in the activity of universals. These universals were not presentations, were not immediate experiences, on the contrary they were the agents which transformed these experiences into objects. This doctrine has markedly influenced all our conceptions of thought at the present day; and the confusion between psychological and logical thought is partly due to it.

We have found relations and a universal character in the heart of the feeling-*continuum*. What is this universal character? It is not a feeling. It cannot be presented. It is a symbol of other realities. It is an idea. It is thought.—But this universal, this thought which is never an experience is not the thought of psychology. The thought of psychology is experienced. It is "the present pulse of thought". And it is in these pulses of thought in constant change, and by their activity, that this universal, this world-thought, is discovered. The universal penetrates all reality, including our immediate experience, whence the universal character which we discover in it. We *find* what the universal character of our experience is: this universal character *makes* our experience what it is. Our thought—the thought of Psychology—discovers the character of its object,—discerns the identity as it discerns the difference: this thought—the thought of logic or metaphysic—constitutes its character.

But in psychology we have nothing to do with this

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idealistic interpretation of the nature of every object as thought. For us this nature is simply a common nature. And at all events it is not *our* thought. Our thought deals with it, discovers it, identifies it. Our thought is now occurring: and as well might we confuse it with the difference of its object as with that object's universal character or identity. Yet it is due to the confusion between this metaphysical and this psychological conception of thought, that we owe the false doctrine in psychology that thought must necessarily transcend immediate experience. Once speak of universals as "symbols," "ideas," thoughts, transfer this conception to psychology, and it is obvious that we cannot limit thought or the universal to the experience which it qualifies: thought in this sense must transcend immediate experience. Surrender this metaphysical conception of thought, with which we have nothing to do, take thought as the discriminator, the identifier of objects, as the witness not the constructor of experience, and the doctrine that this passing thought must transcend its immediate experience is no longer obvious; and when we apply it to interpret the infant-mind becomes in the highest degree doubtful.

It is, then, at least possible that thought may be confined to the complex of immediate experience. There is nothing in its referring, discursive character which necessitates any other objects than a multiplicity of different presentations contained in the *continuum* of immediate experience. The definition of thought which has come down to us from Kant, that thought is a reference of presentations to objects which are not themselves presentations, is at least non-proven. And as applied to the infant-mind, it is not merely improbable, it is an unreasonable assumption to make, because it is not required for the interpretation of the facts. The only objects that we need assume are the distinguishable and co-presented sensations. And as far as we can judge the earliest thought in the infant-mind begins with some discrimination between these sensations. Preyer remarks[1] how very early, as early as the first few days after birth, the difference between light and darkness appears to be discriminated. With the constant opening and shutting of the eyes, it must be one of the first, as well as of the most marked, of the changes that we directly experience. It may be that this simple discrimination of light from darkness is the infant's earliest thought, and there is no ground for

[1] *The Senses and the Will*, ch. i.

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assuming that it must be complicated by the identification of the light as light and the darkness as dark. The discrimination of bright light and bright colours from the duller sensations around them seems also to be one of the earliest thoughts. But it is more difficult to say what is the first thought of the *same*. It may lie between co-presented sensations of the same class as distinguished from other sensation, or what is more likely, between a sensation which has been several times experienced and the reproduced images of similar sensations. If a few days after birth a child is apt to cry if turned away from the light, it may well be that the image of the light is still with him, contrasting with his present duller sensations, and when he is again turned round to the light he may identify this image with the fresh sensation at the moment of their fusion.

We have then to give a definition of thought which is strictly universal, and which does not make the assumption that thought commences with the conception of an object not contained in immediate experience. Thought universally transcends that from which it starts, universally refers to some object beyond it. But what does 'transcend,' what does 'refer,' mean? It means that we can never confine thought to the central 'item' from which it starts, that it inevitably thinks of what is outside this item, even if that be only the sensational context. All definitions of thought are deceptive. They are not strictly definitions. They have only a suggestive value. The *differentia* of thought is irreducible; we cannot decompose it; and if we press the meaning of the term 'reference' we have to explain it by the term 'thought'. It is the same with the terms 'discrimination' and 'identification,' which we have so frequently employed. They are more suggestive than 'thought,' but like the phrase 'objective reference,' they are no simplification of its conception. Discrimination is the conscious thought of difference, and identification the conscious thought of agreement or identity. Like so much in the mind which we vainly attempt to analyse, the *quale* of thought defies analysis and remains absolutely unique.

## XIV.—Thought as Feeling.

We are so accustomed to the antithesis of Thought and Feeling, of thought and sensation, of the knowing subject and its experiences, of attention and the field of presentation—in one form or another, of the dualism of consciousness—that the contradiction does not strike us when, in the

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exigencies of our situation, we are forced to take the present thought in its relation to sensation to be an occurring thought, the knowing subject to be, not its bare abstract character, as if that could work independently, but the present particular knowing attitude which has this abstract character; and attention to be no more than attending. For this attending, this knowing attitude, this thinking about sensation, is itself, as process of change, part of the continuous stream of immediate experience. Thought, that "central part of the self, is felt". It is "no mere *ens rationis*, cognised only in an intellectual way; no mere summation of memories or mere sound of a word in our ears. It is something with which we have direct sensible acquaintance. . . ."[1] Were it not so we could no more form a conception of its unique and irresolvable character directly present to us in all our experience of thought, than we could of the unique character of a visual or auditory sensation without a direct experience of them. But if thought is itself an immediate experience or feeling, what becomes of the familiar opposition between them? We can no longer maintain that the universal character of feeling is absence of objective reference, since in thought we have a variety of feeling of which the specific character is objective reference. But if feeling cannot be defined by absence of objective reference, how are we to distinguish it from thought? Our problem is now to describe feeling positively, not in negation to thought, and to regard thought not as opposed to, but as a variety of feeling. Feeling, then, may or may not have objective reference, may or may not identify and discriminate objects. But, whether or not, it has the positive character of immediate experience. Its essence is "in being felt".[2] And this holds true of thought itself, as well as of the sensations of the special senses. And although all feeling cannot think, cannot identify and discriminate objects, all feeling can be thought of, can be identified and discriminated object: and this holds true of thought itself, as well as of all sensation. But any particular feeling may not be thought of—may neither be identified nor discriminated: and this holds true of thought itself, which in greater part is undiscriminated. Feeling universally lies open to thought; and thought as feeling lies open to itself.

Feeling then has two universal characteristics: it is felt; it is capable of being thought of. With regard to this second

[1] William James, *op. cit.*, vol. i., p. 299.

[2] G. T. Ladd, *Psy. Ex. and Des.*, p. 165.

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characteristic we may predicate of feeling, what the philosopher predicates of the world: it is intelligible. What more can we say? We cannot analyse feeling into anything simpler: we cannot define it. We cannot contrast it with anything in the mind which is not feeling, because all is feeling. We can only contrast it with its own unique varieties. Feeling is not essentially visual sensation, not even organic sensation: feeling is not essentially thought. The last contrast is the most striking and suggests the clearest negative conception. But if we desire a positive conception we must be able to grasp what is meant by 'experience,' which we try to make clearer and more emphatic by the qualification of the adjectives 'direct' or 'immediate'.

We come next to the character of thought, how do we distinguish it? Its positive character is to have an object distinct from itself. Its objective reference means "reference to an object other than the mental state itself".[1] Its object is not essentially outside the field of presentation, but is essentially other than itself. And this restriction of primitive thought to the field of presentation does not affect its universal character. Its range is more limited. But within this limited range the same relations await the identification of thought as outside, relations of co-existence and succession, of difference, resemblance and identity. It is this reference of thought to something other than its present thinking which distinguishes it from all varieties of feeling that are not thought—from organic and muscular sensations, from sensations of temperature and all special sensations.

## XV.—The Antithesis of Thought and Sensation.

"There are two kinds of knowledge, broadly and practically distinguishable . . . *knowledge of acquaintance* and *knowledge-about*." They are broadly distinguishable but still "relative terms". For "the same thought of a thing may be called knowledge-about it in comparison with a simpler thought, or acquaintance with it in comparison with a thought of it that is more articulate. . . .[2] The words *feeling* and *thought* give voice to the antithesis. Through feelings we become acquainted with things, but only by our thoughts do we know about them."[3] This is what the words mean in their ordinary sense—feeling does but emphasise the constituent of immediate experience, and thought

[1] W. James, *op. cit.*, vol. i., p. 186. [2] *Ibid.*, p. 221. [3] *Ibid.*, p. 222.

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that variety of it which has a reference beyond itself. Neither term in this popular sense wholly excludes the meaning of the other: it is but a difference of degree. And we have only to identify this ordinary meaning of the terms with the character of the facts, and the conclusion is reached that feeling though in a lesser degree is universally thought, and thought though in a lesser degree is feeling. The "feelings from our viscera" and all our sensations are thoughts having a cognitive function, and objects distinct from themselves. "They may be faint and weak; they may be very vague cognisers of the same realities which other conscious states cognise and name exactly . . . "[1] but they still remain conscious, never become unconscious—they are always noetic, never anoetic states.

But this identification of the meaning of the terms with the character of the facts, on what evidence does it rest? While for instance I am thinking about some present organic sensation, how do I know that this organic sensation is not thinking about something else? I cannot directly know the contrary. I cannot directly prove that sticks and stones do not think. If, as appears to be the case from hypnotic experiments, consciousness "may be split into parts which co-exist but mutually ignore each other,"[2] why should not every sensation, as long as it is a present fact, enclose a world of its own and deal with that, as *we* deal with it? All this is conceivable: we cannot directly prove its non-existence: we cannot prove its existence. There is one and only one thought we can experience, our own. Our present thought may be dealing with a state of the body, an organic sensation. This present organic sensation about which we think, may have a thought of its own about something else, perhaps about our own inquisitive attitude toward it. But of its thought, if it exist, we have no experience; we only experience our own. There is no evidence for asserting that it has a thought: there is direct evidence for asserting our own. But supposing that when our thought is introspective and thinks of its sensations, there were as many other thoughts within us as there were sensations discriminated, these thoughts would still not be the same as the sensations that had them. Does this require any proof? Our thought experiences the sensations; but it has no experience of their thoughts. There must then be some difference between them. Nothing can ever make an organic sensation qualitatively the same as its thought if it have one. If a

[1] W. James, *op. cit.*, vol. i., p. 174. [2] *Ibid.*, p. 206.

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sensation of blue discriminate between two sensations of green contiguous with it, this discrimination is not the blue sensation. The thought may be one with the sensation, and no more than its inner and hidden reality; but analytical psychology must distinguish between them. The antithesis between thought and sensation is based on the unique character of each, and like that character is irresolvable.

But will not this distinction break out even in thought itself, which we have taken to be a peculiar variety of feeling? What kind of a feeling is thought? Can we localise it in some part of the *continuum* of feeling? "Whenever," says Prof. James, "my introspective glance succeeds in turning round quickly enough, . . . all it can ever feel distinctly is some bodily process, for the most part taking place within the head." The "acts of attending, assenting, negating, making an effort, are felt as movements of something in the head".[1] And "if the thinking be *our* thinking, it must be suffused through all its parts with that peculiar warmth and intimacy that make it come as ours".[2] This warm sensation in the head is the feeling of our thought? Yet our thought may clearly discriminate it, and be obscurely aware of itself. Our thought in its reference to this feeling may take up several attitudes: 'Is this feeling what I am? it may be: let us suppose it is'. But the feeling itself is not successively these three attitudes: it is neither a question, nor a problematic judgment, nor a supposal. And if the warm feeling in the head be, in some sense, the feeling *of* thought, thought is certainly distinguishable from it. There is a qualitative difference between them.

But in what sense is this sensation in the head the very feeling of thought? Is the sensation anything more than a constant accompaniment of the thought? A muscular sensation ordinarily accompanies will and conation, and a sensation in the head, thought. This is the only verifiable connexion between them. In the next case, we can point out in what the feeling of thought consists; and it does not consist in this warm feeling in the head. Thought is at least qualitatively different from this feeling. Thought has by general agreement a unique and irresolvable character. We should never have any conception of this unique character, unless we experienced the thought which has this character. And we must experience it in its qualitative difference from those warm feelings in the head with which it is connected. These feelings in the head we also experience: these feelings

[1] *Op. cit.*, vol. i., p. 300. [2] *Ibid.*, p. 200.

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we also identify and interpret by thought. As so interpreted, they are found to have the peculiar quality of organic sensation interpenetrated with the sensation of warmth. Our thinking we also experience: our thinking we also identify and interpret by thought. As so interpreted this feeling is found to have the peculiar quality, not of warm sensation, but of *thought*. The feeling in which thinking consists is this unique feeling. It has its own character. It no more has the character of organic sensation, than of visual and auditory sensations, which likewise have their own unique quality.

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## III.—TRUTH AND HISTORY.

By J. B. Baillie.

One of the most interesting and suggestive results of recent philosophical inquiry is the position that the discussions which gather round certain facts in our experience can be separated into two kinds which are really quite distinct from one another, and to each of which, it believes, perfect freedom may with impunity be granted. It maintains that the investigation which deals with the growth and change of the fact considered is radically different from that which seeks to determine what is the inner and essential nature and meaning of that fact itself which undergoes the process, and that, the inquiries being so different, we need not apprehend any conflict in their conclusions. This distinction assumes various forms according to the nature of the problem in hand. Sometimes it reveals itself as the assertion of a difference between 'eternal truths' and the particular appearance which these truths may manifest at any given time; or again we meet it when it is claimed that the history of a doctrine or belief is one thing, but the belief which has the history is quite another and must be considered separately; or further it appears in the emphasis laid on the distinction between the psychological treatment of the process or processes in a judgment and the discussion of the validity or truth of the judgment itself. But in all these cases, and these are typical, the same essential features are preserved. And for various reasons such a distinction is considered to have its claims justified and its value assured. The trend of recent scientific investigation in every department of its work has unquestionably been to lay unusual stress on the historical aspect of the facts under consideration. The eager search for those primitive elements or primordial forms under which facts physical, chemical or biological originally appeared, and from which by involution and evolution the various manifestations which have appeared, or do appear, must, given time enough, have gradually unfolded themselves in the context of reality, is the most pronounced expression of that method of inquiry

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which finds its complete satisfaction in the discovery of the transmutations of its object; in the reduction of its facts to their antecedent constituents or conditions in order to show how these worked themselves into the facts from which the inquiry starts; in the retracing of the present complexity of phenomena back to a simpler, more continuous form, where the present differences are either sunk into indistinction or are less prominently manifested. And it is clear that what is legitimate as a method in a number of sciences, and has there worked successfully, is legitimate in every sphere where the facts are subject perceptibly to change. Hence, since every object which we can consider has a temporal aspect and since time simply means change, every form and feature of reality without exception has been subjected to the treatment of this method of science which is so distinctively modern. From the orbit of a planet to the judgment that the planet has an orbit—everything has a history. Now the singular fact to be noted is that this which is a method of science has by reaction on the thinker become or produced an attitude of mind. The scientist rests completely satisfied with the tracing of the process; with the discovery of the history the inquiry ceases, and all has been said that can be said. And it is against this limit to discussion maintained by science that a protest has been raised. This protest started from and has its strongest claim to consideration in the field of the moral and religious life of man, but it does not require much insight to discover that it takes in a much wider area of facts. Its purport is to emphasise the necessity for confident absoluteness in the sphere of duty, for certifiable unchangeableness in our elemental beliefs; it takes its stand on the purposes and ideals which give value to life and maintains that human existence would be in blunt contradiction with itself if that which man considers the enduring basis of his being awaits in perilous security its own annihilation. And this protest gradually reveals its rational ground. For the view declares further that things not only *become*, they *are*; that what they are logically precedes their possible becoming; that facts which appear are not absorbed into their appearances but are the permanent basis of them; that if things are simply their own appearances, then it is impossible to connect them as the appearances of those things of which it is asserted they are the appearances, for then each appearance would be a new thing; that there must thus be an inner kernel or content of identical (*i.e.*, unchangeable) import which remains and endures through all change. This is applied to all spheres of reality, and more

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particularly to ideal judgments, *i.e.*, to the spheres of goodness and truth. Here indeed, we may say, the position takes its ground to begin with, and this it makes its firmest stronghold to the last. One of the final results of the defence it has made is the statement with which we have opened this paper. The value of the position in other regards need hardly be pointed out. It means for instance the securing for metaphysic a place among the sciences, it means the defence of knowledge from a hopeless relativity or an utter scepticism, and it has quite obviously a decided practical significance. The position then, we may take it, has secured its foothold; and it is defended by thinkers of various schools, as we can discover from the writings of Prof. Seth, and from the unofficial but none the less pronounced and unambiguous utterances of Mr. Balfour.

Now there can be no question that the distinction maintained is of most vital importance. The temporal aspects and appearances, the history, in short, of our judgments, let us say, is assuredly very different from the truth which the judgment expresses, from the knowledge which it conveys, and which as knowledge is true without further reference. But this distinction, taken as it stands and as it is currently stated, without further elaboration, discussion or examination, has simply increased our intellectual clearness at the price of our intellectual perplexity, and has drawn us from the treacherous allurements of a ruinous simplicity to place us in the midst of a less attractive intellectual confusion. For when the inquirer, possessed of this new distinction, and doubtless enriched thereby, proceeds by the help of it to find some satisfactory way of uniting those two diverse matters and modes of discussion, he soon learns that not only does he get no help from the distinction for his purpose, but that the distinction itself makes all such attempts fairly impossible. And his attempt to discover this unity is entirely justified and indeed inevitable. For clearly it was to relieve the mind from a false unification and simplification that the above distinction was made, but surely never to prevent unification being sought; and obviously it is useless to try to allow two distinct discussions to start from and refer to one object at one and the same time, and not attempt to unite the results of those two discussions into one conclusion about that one object. Now it would seem as if the cause of the error in the former case mentioned above is similarly operative here also, and that the diversity of method of approaching the problem has produced not merely diversity of conclusion, but thorough-

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going opposition. The dilemma is briefly this: The discussion of the *history* of a judgment,[1] let us say, is admitted to be a perfectly legitimate and independent inquiry; the discussion of its *truth*, its *validity* for knowledge, is likewise a legitimate and independent inquiry. Now the deliverances of both these inquiries must be accepted as true and valid conclusions, each as it stands at its own worth. The assumption and the conclusion in the first inquiry necessarily maintain and imply that the judgment under discussion, because having a history in time, must and does change. The assumption and conclusion in the second inquiry necessarily require it to be maintained that the judgment, because true or valid (or because having truth or validity for knowledge), is, as true, true universally, *i.e.*, does not and cannot change. Now both of these conclusions are true. But if the first conclusion is true, then the judgment can *never* be universally true or valid, for it is *always* in time, in process, and that means change. Yet again if the second conclusion be valid, then clearly the judgment has not and cannot have a history at all and cannot change, for to be universally valid or true just means that it is beyond the limitations of any particular time; universal means simply indifference to time and therefore to change. Out of this dilemma there is apparently no hope of coming; and yet to avoid the dilemma means simply to close our eyes to a glaring contradiction. Let us take any judgment we please and apply it, and the same conclusion holds, and the case of the problem which we have chosen is quite typical of the general question. Take any other instance, beliefs, doctrines, 'ideal and fundamental truths' and their respective histories, and grant legitimacy to both kinds of inquiry above mentioned, and you find yourself transfixed mercilessly by the same dilemma which stands rooted in the problem in all cases. And out of this fatal perplexity the problem itself, with these presuppositions, which have hitherto lent meaning to the distinction, and the admission of which has been granted on all sides, will not allow us to pass. For the difficulty is not in the least imaginary or due to ambiguity of language, or misconstruction of ideas. It will not help us, for instance, to say that no one ever claimed absolute universality for the truth of a judgment, that a judgment is only asserted to be universally true inside that sphere to which, by its content and by time, it is confined. For here again, within this sphere itself, precisely the same difficulty

[1] We might generalise this problem; but what is said applies universally, and the particular case cited may suffice.

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breaks out, not to speak of others which are created. Because when we assert that inside the sphere in question the judgment is universally valid, we are forced at the same time to admit that inside that same sphere, and the process which that sphere as a particular part of reality is *ipso facto* necessitated to undergo, that same judgment has had a history; for process is knit up with change and time, and that means history. We shall not be able, therefore, to assert that even inside this sphere the judgment is in reality universally true; or if we do assert this, then we throw ourselves against the other horn of the dilemma. Nor will it be of any assistance to maintain that universality just means outside of time altogether and that hence by our very assumptions a conclusion which bears on or "possesses" universality *cannot* be affected by or refer itself to one which only holds of what is inside the temporal process. For if we insist on the absolute disparateness of the contents of the respective judgments, how will it ever be possible to bring the two together into some intelligible connexion? If what is inside time is utterly severed from what is outside time, how are you going to harmonise the two? For, be it noted, you most certainly must harmonise them; you cannot leave the two side by side and say it is an uncalled-for inquiry. The inquiry is imperative because both statements, both judgments, refer to and hold of one and the same object; for the object discussed is surely the same object in both cases. How then can that object have utterly opposed judgments valid of it?[1] Is it at all possible or thinkable that one object actual and concrete in its unity should ever possess aspects or kinds of content so utterly different as even to be conceived as unrelatable or unaffected by each other? Nor again dare we console ourselves by supposing that universality and truth in a judgment need not after all be very strictly insisted on, that they are not so supremely essential to the case. For precisely the reverse is maintained and must be maintained; and with sound reason. For it is exactly because a judgment has truth and claims universality that it is on the one hand worth our while and necessary to seek and state its history, and on the other that it is even possible to do so. If it had no universality there would be absolutely no sense in attempting to trace the history of what as a matter of fact could have no history, because it would be so absorbed and mutilated by the process which it passed through that the two

[1] To say that the two judgments refer to two correspondingly different elements in the object itself is quite obviously just restating the problem. It is in fact the same problem from another point of view.

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ends of the process would be entirely unrecognisable and no identical factor could connect them and the intervening processes together as forms or modifications of one identical object. Knowledge in such a case would have simply no meaning. Yet strange enough it is simply because the judgment must be universal that our perplexity has arisen! Nor, further, shall we be assisted by struggling to maintain that the two 'aspects' of a judgment considered are in reality so distinct as to be almost *sui generis*, and no possible confusion or contradiction can therefore arise in the conclusions come to by the different discussions of each. This view simply increases the perplexity of the situation. For as a matter of fact the conclusions arrived at by both discussions contain elements which are unquestionably in abrupt contradiction with each other. Surely to assert that a judgment has a history and that it is universal and has therefore none, and can have none, are directly contradictory statements. 'But,' it may be said, 'the two "aspects" considered are distinct, the facts started from are *really* different, and each discussion can therefore proceed comfortably in its own way.' But in the first place both these aspects, both these kinds of facts belong equally and in their own right to that one object of consideration; they *cannot* therefore, and for that reason, be so diverse as to be unrelated or produce conclusions which are in any wise irreconcilable. And, in the second place, the object matter is actually one and the same in both discussions, and this without qualification; it must be so. For a judgment, being the expression of knowledge, has its very being in the truth to which it gives utterance. Apart from this it is nothing, and more than this it does not contain and more it does not profess to be. When we discuss a judgment in any way whatever it is judgment in this meaning and sense and in no other that we discuss. What two 'aspects' then can there possibly be, which can be treated so separately as to produce such diverse results? The answer offered is that one aspect is its character or aspect as a real existence, as a conscious fact of mind, as a psychological phenomenon; the other 'aspect' or character is found in the fact that it is the expression of a truth, is a form or utterance of knowledge, and this is quite distinct from the former aspect. In the first character it has, as an existence, a history in the conscious subject or in the development of the race also; in the second, its epistemological ideal aspect, it has and can have no history; it has truth, validity, only. Now are we discussing judgment actually and truly in the first case or are we not? There is nothing, be it remembered, to discuss in judgment except in

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so far as it is the embodiment of knowledge. The truth which a judgment expresses is not contained inside a shell of factual existence in the mind which can be thrown aside and leave the truth, if we are ingenious enough to separate the two. The judgment as a truth of knowledge is precisely the same as judgment as a fact of mind. For if it is not, if the judgment in the psychological reference is either the mental environment of the truth expressed, or its antecedent conditions, or the mental factual base of an ideal truth, or the mental 'conditions of the possibility' of a universal truth, or anything except barely and literally judgment as knowledge without qualification—we may be discussing something perhaps very necessary in its way, but it is emphatically not judgment in that signification which gives it meaning for knowledge. Of judgment it holds without reservation that form and content are through and through identical; it has not a form of existence and a content of truth; or rather its form is just its content, and its content its form, the knowledge it expresses is that which exists, and that which alone is, is the knowledge expressed. 'But in admitting this disparateness of existence, and of truth existing, are we not allowing all that is claimed by the view we are discussing, and thereby giving up our own criticism?' Our answer is that we are not by any means denying that there is this difference of the characters or aspects stated; what we are maintaining is that these two aspects cannot be discussed in their disparateness simply and solely as such without taking the *whole* judgment with *all* its significance along with us in the discussion; that if we could discuss either, barely and alone, the discussion would not assist us one step, we should not be discussing that which itself gives meaning to the discussion; the whole procedure, in short, would be a futility, and could only be maintained by the implicit and unconfessed admission into our inquiry of elements which we purposely declare to be excluded. If, then, our contention is valid, probably much of the psychology of judgment would vanish, but certainly not our present perplexities; the method of loosening them by distinguishing 'aspects' of a judgment as above has proved quite helpless, because when these aspects are properly understood and discussed, we find ourselves still in the troublesome insecurity of our original dilemma. Nor once more shall we get free by declaring that the unchangeable validity, the universal truth of our judgments is never really a fact for knowledge, is never realised in it, but that, though it is none the less essential to knowledge, it must be maintained to be an ideal; the knowledge, the

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judgments we have and form, are all in process towards those ideals, but just because they are in a process, they never complete their history and realise these unchangeably valid truths. This subterfuge is probably ingenious; it can hardly be considered comforting. For, not to return to the difficulties regarding a non-temporal universality, surely there can be little security for the validity of a judgment regarding the changeless character of ultimate truths when that judgment itself can be drawn from no other source (our actual knowledge namely) except one which is admittedly fused in change. And what help does it give to the discovery of how a judgment can at once be universally true and have a history, to be told that it is not universally true at all, that this lies outside our knowledge in a sphere of ideal forms? how can we aid ourselves in the solution of a dilemma which falls inside knowledge by appealing to what lies outside of knowledge altogether, and which, therefore, can neither cause nor cure our confusion? Clearly, if universality were taken in that sense the problem we are discussing could never arise; indeed, universality of judgment would not exist. Now, without question a judgment is *at once* true and universal and has its own history; science, and indeed the very meaning of knowledge, claims both these qualities of its judgments. Knowledge would be impossible, science a fiction, if it were not actually and as it stands taken to be a system of universal truths expressed in judgments. And the change infects the character of the judgment just as it stands and without qualification. We now seem to have tried every avenue of escape within sight out of this charmed circle, and with no result whatever except the grimly satisfactory discovery of its compact impenetrability. Other channels of exit we think there may be, but we should doubtless find them leading to those main portals we have attempted. The dilemma, therefore, remains fixed just as we discovered it; and now we find ourselves so pitilessly bandied about from one side to the other, that we begin to wonder what comfort and security we could ever find in that so helpful-seeming distinction which was to save us from a simplification or unification which would have hurled us and all that we deemed lasting, abiding and precious, along the merciless stream of merely hurrying process; and which was to deliver us at once from the self-evident absurdity of maintaining we had no history, and from the paralysing hopelessness of confessing we had nothing else. And we have not either imagined or exaggerated the situation in which we find ourselves; we have simply taken the deliver-



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ances as they were given us with all their obvious assumptions and with that view of process in time which they acknowledge the scientists whom they oppose to be justified in holding, which, in fact, they share with these latter, and which gives point and purpose to their contention and claim that elements, facts or aspects exist which cannot be admitted to fall within the sweep of that process.

Is there then no way out of our perplexities, or shall we have to acquiesce in the acceptance of directly opposed and radically contradictory conclusions of two legitimate orders of science, which arise from the accurate application of two equally necessary methods of scientific inquiry, and thereby to admit that knowledge in general (for *all* the spheres of reality known have these two features and characters which necessitate the two methods in question, the problem being as we saw quite general) is in the last resort utterly incompetent to secure that completely determinate self-consistent unity, the demand for which by the mind of man it professes to be able to satisfy? There seems to us only one resource from our imminent intellectual bankruptcy, and that is to be found in a revision of the conception of a temporal process; for it is this, obviously, which is the source of the difficulty. Such a revision we shall now attempt to give. If we take the fact of change, of process, simply as it is presented to us, without attempting to view it in reference to an end or what we should call a purpose, we shall find its significance, its content as a fact, to lie in this, that it is a mode or means of manifesting difference in that which underlies and undergoes the process. Further it is characteristic of this mode that the differences appear as antecedent and succeedent, that is, the presence of given differences or of a definite arrangement of differences requires and is only possible by the removal of other differences or of an arrangement of differences. That which retains or undergoes these differences is not separated from them, but is identified with them, while inasmuch as it contains various moments of difference and is not absorbed entirely in any one, it has a wider, larger reality than any particular difference or arrangement of such, and in that sense is distinct from its differences. Now quite similar, nay identical statements and considerations hold good of reality in another of its aspects. When we are presented at one and the same time with a number of different appearances of the same object, that is when these different manifestations are each separately and at the same time considered as determinations of a reality which is intelligibly the same in all these different forms, we have here again as

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above precisely the same conditions to work with. We have a definite object (kind of reality) in principle identical in all those individually different appearances of it, and in all cases identifying itself with the characteristic arrangement of differences which appears in each, but because not wholly absorbed in any one, it is in itself wider, larger than any of these different forms of it. We have, again, differences which have each a specific quality which makes it impossible to substitute one for the other; each of the different individuals excludes every other, but instead of one ceasing to be and giving place to another (as in the former case) they all exist side by side and at once. In other words differences can be simultaneous as well as successive. Instances of simultaneous difference are easily found. To take our former example of judgment, it is surely only too common to discover men's judgments regarding a given subject disagreeing very considerably, indeed it is uncommon to find anything else, and yet they all, while acquiescing in the differences of judgment, and allowing that each man is at liberty to hold strenuously by that judgment which he considers the truth of the case, declare just as strongly that 'at bottom there is no disagreement, they all really mean the same thing'. The more this state of affairs is considered the more astonishing and extraordinary it appears. Still there can be no question that this fundamental community of understanding does exist and must exist. The very continuance of society, for example, in all its multitude of diverse and conflicting interests, each of which has its active representative, is a perpetual guarantee for the essential agreement which cannot but exist in the midst of, if in spite of, that difference. Now it is evident from the foregoing that the diverse elements, aspects or forms of reality (namely the universality or community of content, and the particular and varied appearance of this content) which gave occasion for that distinction in method of treatment which we have already discussed, are actually and completely present in this second mode under which difference manifests itself. We cannot maintain that the factor time is present in one case and absent in the other; for it is obviously present in both, in the first as successiveness, in the second as simultaneity, and both of these characteristics or qualities of time are absolutely essential to its meaning; the one is as necessary as the other. The conditions of reality therefore which start the discussions necessitated by the distinction above insisted on are quite unaffected by the temporal quality under which these conditions may appear. The colouring which the dis-

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cussion may receive from the introduction of time in any way may consequently be entirely removed, and the problem which in the last resort is the only one we have to face (the existence in reality of a universal content, principle, concept, as we please to call it, and different appearances of this content) will remain unaffected thereby. Time in short may be dropped out of the discussion altogether and no reference made to it. For if the discussion is necessitated, no matter under what temporal aspect the features of reality, requiring the discussion, manifest themselves, clearly time is indifferent to the problem, and the problem indifferent to time. And we see this from another line of consideration. In time as successive we have, in the case of a given object with a 'history,' precisely the same facts to consider as in the case of a number of objects generically the same appearing side by side. For on the one hand we have different appearances of that one object, the object at *different times* is an *individually* different object; it is as if the object in question had divided each of its appearances from one another by intervals, each being thus an isolated realisation of the object. Now if we regard not merely this one last appearance in the history of the object, which we have before us in the actual present, but look at the whole series of isolated appearances which as a matter of fact the object has presented, and consider this series as actually before us at once (as would be the case to the mind of an absolute understanding), we have precisely the same facts in front of us as we have in the second form of difference above stated. Precisely the same without reservation, for each of these diverse appearances in the series is one appearance of the object just as is the case when individual instances of the same object are presented side by side. On the other hand again take the various appearances or 'instances' of an object which appear simultaneously, and suppose an intelligence (with perhaps less extent of range of attention than ourselves, though this qualification is not really necessary) to move from one appearance to the other, we should have exactly the same facts before us as if that object had passed through a process in time, and to an absolute understanding again they would appear just the same as if they had undergone a process. And we are not forgetting the facts of organic continuity of development, for this conception would be quite accurately attained in the case of the intelligence assumed, provided this intelligence moved from one to the other, not arbitrarily but according to a fixed principle, say the degree of realisation of the unity of content in the various differences. Now if the foregoing argu-

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ment is accurate, and time does not enter into our problem at all to determine its essential character either one way or another, the hopeless confusion into which we were plunged by the distinction as above formulated is at once cleared away, for the dilemma has now ceased to exist. And no other solution of the difficulty seems able to assist us, or seems indeed obtainable. The only alternative therefore to denying the truth of this suggested solution is to accept the bankruptcy of knowledge as an unaccountable but established fact. But if this interpretation be accepted then certain consequences of considerable significance have to be noted. Before mentioning these, however, one or two objections to the foregoing may be answered by anticipation. It may be said, for instance, that we have not delivered the problem from time, we have merely shown the indifference of time to the problem. 'For differences,' it will be said, 'appear at different times, and hence the general or identical nature in these differences at different times is different in these various times and thus the old difficulty breaks out.' But this is in reality a repetition of our own view, because 'to be different at different times' means absolutely no more than to be different; the statement in fact is a repetition of itself. Of more importance is the objection that we have simply shifted the problem which is actually started by that distinction above suggested which brought contradiction into knowledge. We have, it will be said, put the problem into the form of an attempt to show that unity can still be unity, though it appears differently, that universality and validity can be predicated of, can belong to, a judgment which nevertheless appears differently; but how this is possible or thinkable we have not shown. But to begin with, this objection is largely a misunderstanding. It was not our purpose to show how certain fundamental aspects of reality are thinkable; our business was to dissolve a contradiction which was clearly inevitable from the start between the conclusions which would be arrived at by the treatment of reality according to methods which by their very nature and assumptions could not produce results other than radically irreconcilable. And this inevitable opposition which would arise we consider we have obviated. For it has been shown that the aspect of reality which is actually considered when we are discussing the 'history' of say a judgment is nothing other than the quite general fact of differences under which a judgment appears; and our discussion has also gone to show that these differences by their very nature cannot be treated simply as differences, but must be treated with reference to the general

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content which they express; and likewise *mutatis mutandis* of that general content. We have thus removed the contradiction in result, by removing the opposition in method; we have in short destroyed the ostensibly radical opposition of the distinction insisted on, by pointing out that both sides of the distinction of method are at bottom simply reducible to one and the same method, raised by what is fundamentally one and the same condition under which reality appears. The difference between the methods which seemed so radical is thus shown to be simply a distinction based on emphasis on the aspect of reality considered, the method in both cases being in fact the same. And further that discussions must by their very nature produce contradictions is quite another position from the assertion that discussions will cause grave difficulties. That the discussion of the aspects of universality or unity and diversity of appearance will produce obscurities is not the same as saying they will inevitably produce contradictions. If we had asserted, or if it could be asserted, that universality of a judgment, say, entirely and completely absorbed itself in a difference *quâ* difference, then indeed would a contradiction appear, similar to that which we have already removed, and it is just such a contradiction which Mr. Bradley establishes in his discussion of unity and diversity. But when it is pointed out that unity and difference are bound up together, but that neither in reality annihilates the other, we have merely to discuss *how* it is possible for these two to be thought in relation, and this is in fact part of the business of metaphysic.

Granting then the validity of this view, let us indicate certain consequences. The first we would mention is the pure subjectivity of the time factor. For, seeing that the ultimate and final features of reality which exist, and the discussion of which is the essential and only problem of knowledge, are universality and individuality, unity and difference (express it as we choose), and since for the discussion of the real connexion of these features the time factor as we saw could be entirely eliminated, and indeed to deliver us from contradiction must be eliminated, it is evident that time is not constitutive of ultimate reality, is not in any strict sense objective. It must, therefore, be considered as a subjective construction, as a factor in conscious experience which owes its nature and its being, as a definite conscious fact with completely determinate content, to the creative activity of the knowing subject. It is occasioned by the reality of difference, and is the subjective form of the knowledge of difference in general, of the relating and connecting

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of differences *as such* and *inter se*. But we saw that difference as such has no self-subsistent reality, and we saw too that the ultimate and final discussion in regard to difference must be the manifestation of a general content, a unity through and in difference, and the determination of the degree in which this unity is realised in the specific difference. But this being so the assigning a substantial reality to time as such is unwarranted and inadmissible. And we see that this alone will, in fact, satisfy the demands made by those who insist on that distinction of elements of reality and of the treatment of these which we mentioned at the outset. Unquestionably, as was pointed out, the distinction has its root in the claims of the moral worth, the ethical purposes of man, and the supreme obligation that the universe lies under of meeting his deepest needs with an affirmative, and fostering his fairest hopes. But this means that each stage in the manifestation of man's life, nay, each individual in every stage, shall actually and without reservation have it in his power to enter completely into the full inheritance of the promises, that he shall not be sacrificed that others may enjoy, that in short he shall be in his own person an end in himself and not the instrument of another, be that other even the race itself. What, it is asked, shall *man* think of a supreme purpose designed for man which is only shared in by those of the race who, forsooth, shall have had the good fortune to be born when it becomes realised, a purpose which will therefore only have become victorious by condemning to futility the millions of lives it has exhausted and left behind in the process? But if this relegation of the supreme purpose of man to the entirely indeterminate, 'far-off divine event,' be denied as morally self-contradictory and repulsive, the claims thereby implicitly and explicitly insisted on can only be satisfied by maintaining, and indeed nothing else is left us except to maintain, not that there is no purpose at all, but that the supreme purpose is realised completely at every pulse in the life of humanity, that the purpose does not lie in any beyond, but is immanent and actual completely in all the appearances which man's life presents. This is what is meant by breaking through the variety of form and manifestation in which man appears, insisting on the absolute and necessary oneness of nature and being man in all cases possesses, and refusing to admit that he is in any wise swamped in the process of his own existence. But if we deny the self-substantiality, and self-sufficiency of difference by removing utterly that end and purpose which would have given point and direction to its

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various transitions, we destroy at once the *raison d'être* of a self-subsistent process of diversity, and with it the apparent independent reality of time, which was merely the form which enabled us to conceive difference as a self-sufficient process. And, as we saw, those claims put forward have much more than merely ethical significance; they reach to every department of knowledge. For it is evident that if knowledge be completely absorbed into the process which man's life would be supposed to undergo, knowledge would in reality cease to be. We need not speak of the quite obvious contradiction contained in the positive and absolute assertion that literally every truth is merely in a process towards truth, and therefore in the last resort not itself true; for if this statement be true then clearly it is likewise merely 'in a process towards truth and therefore not true'. It is much more important to note that such a view would remove entirely that certainty and confidence in principles of which we do not simply believe ourselves *coming* into possession, but actually possessing, a belief which gives us a basis of intellectual operation and an incentive to inquiry. On such a view nothing would be left but absolute scepticism, perhaps not even that. Yet the maintenance of the real validity of knowledge is only possible under the conditions which we have attempted to state in the foregoing discussion. But again if the circle of reality is ever in itself complete, if the plan of the universe is ever self-sufficingly realised, and the purpose of mankind ever immanently present, then it is clear that the purpose is not merely active over the race but in the life of the individual. It therefore follows that every 'stage' in the existence of the individual is in itself quite complete, that the various forms under which man's life appears (childhood, youth, etc.) do not exist simply and solely for the sake of those which succeed, but that each in itself is as 'perfect' (or as 'imperfect') as another. And indeed the judgments of ordinary life bear out this view. For why should it be supposed that, for instance, youth exists solely and primarily for manhood? If we say so, must we not also say that manhood exists similarly for old age? But if we may have a semblance of teleological justification for claiming the apparently rounded finish of manhood as the fit and desirable purpose of youth, how shall we venture to connect teleologically the completeness of manhood itself with that stage which is often 'second childishness and mere oblivion'? A much richer significance seems able to be attached to each form under which man's life appears if in every case it is fulfilling its own purpose; only

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thus in fact can we give that inherent value to human life as such, in whatever forms it appears, which the position we have in view seeks to maintain. What sort of human existence would that be, we might ask, where only one form was to be found, or where only one form possessed in reality any value? And would any one be prepared to insist that a given form or stage had actually no value whatever in itself, but only had worth by reference to a form which would appear later? This at any rate would hardly seem to agree with current opinion on the subject.

We may conclude our discussion by pointing out the effect which the acceptance of its conclusions would have on two ideas of great influence in different ways and in distinct spheres of experience—the idea of Progress and the idea of Immortality. There can be no doubt that the view above indicated will at least require a modification of the meaning which is usually attached to these ideas. For it is clear that the idea of progress in its current acceptation is essentially knit up with time, as it is ordinarily treated. The introduction of a purpose at the end of events necessitates in those who accept such a view the conception of a gradual determination of events towards that purpose, a determination which is not only held to be implicit and unconscious, but can be made conscious, can become a moving principle of the conduct of men. But this involves that exclusive reference to, and regard for, mere process as a separate and self-sufficient feature of reality, which we have rejected. For this purpose in progress is conceived of as controlling history, as determining change simply as change; and it is considered to dominate that change as a *vis a fronte* just as causality is taken to rule events as a *vis a tergo*. And progress, we may note in passing, is as pitiless as causal determination; it is regardless of the individual, it is careful only of the end. But such exclusive reference to mere process, and such disregard of the value of human life in itself, we have seen, are both inadmissible. Yet though progress in this sense must be withdrawn, it expresses a principle which can hardly be overthrown without grave risk to the securities of our moral and intellectual life. The belief that even in the midst of defeat, and perhaps still more in the grim monotony of the commonplace, men are still facing betterwards seems necessary as a spring of continuous effort of any kind. It would take us too far afield to indicate, even if we could, the restatement which the idea would have to undergo. The question, we need only say, can hardly be considered to be merely ethical; there is other

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progress besides moral progress. But in all cases there is the conception of a dominating end, and if instead of conceiving this end to be the external and final result of mere change we take it to be immanently existent, and if further we take the realisation (whether consciously or otherwise) of this end to be exactly proportioned to the extent or complexity of the area which it is to govern, this may perhaps indicate how we might harmonise our foregoing view with the essential significance of the idea of progress. Again as regards the idea of Immortality the only vital effect our conclusion might have would be to maintain that this idea must apply and can only apply to the actual and immediate immanence of man's life as it is in that of the Absolute. To suppose that Immortality 'begins' only after temporal and spatial dissolution seems simply to defend the idea from negations by removing every basis for a possible affirmation in its favour. Any reference whatever to time in fact seems to obscure the significance of the idea, and destroy the very principle on which it rests. For this principle is surely the insistence on the permanent, the enduring, the unchangeable, non-temporal element or character of man's spirit—an aspect which necessarily cannot be gathered up into or expressed by a mere process in time. How to conceive that immanence, however, it is beyond the limits of the present discussion to suggest.

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## IV.—DISCUSSIONS.

### THE PSYCHOLOGY OF DEDUCTIVE LOGIC.

It is a weak point in the new psychology that it has as yet given so little attention to mental dynamics, if the term is admissible. We are studying conscious states rather than processes; in our revolt from the 'faculty psychology' we have been in some danger of neglecting mental activities. We have been taking the machinery of mental life to pieces in our laboratories, and examined each wheel and bar by itself; we have reconstructed the machine in theory—that is, we have seen how the elementary conscious states form parts of more complex states; but we have not yet turned the light of our new knowledge upon the machine in actual motion. One who reads for instance a book like Prof. Külpe's, while he cannot fail to be struck by the great superiority of the new science over the old dogmatism, must feel also the comparatively slight progress that has been made in the study of mental processes as distinguished from mental states. For this lack the old dogmatism is largely responsible. It, as we all know, fairly revelled in mental activities; it assumed a fresh and especial one to meet each emergency of mental life, and it is no wonder that the new psychology has turned away from this reckless multiplication of causes to an exclusive study of effects, of conscious contents; that, having reduced the many faculties to the one activity of apperception or attention, it has even feared that this power would have to be abandoned unless some peculiar kind of conscious contents were discovered to represent it. Whatever the reason, it seems to be a fact that modern psychology, even in its theorising, has not done full justice to the *movement* of mental life.

This is especially true of the process of reasoning. Take Prof. James' chapter on the subject; fresh and admirable as it is, its substance might be stated as follows: Finding that the middle term M is contained in the minor term S, and knowing that M is always associated with P, we conclude that S is P. We shall be good reasoners if we are sagacious and learned; it takes sagacity to find out that M is in S, and learning to know and remember that M is associated with P. Now turn to any text-book on logic, Jevons for example. You find matters far more complicated,—a wilderness of traditional technicalities, rules of fallacy, laws of thought; you are in a different world from that of the psychologist. What *is* all this to psychology? Of course, psychology is not

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logic; but still these propositions and syllogisms are supposed to stand for mental facts. Antiquated as many of the terms are, they yet have a meaning, and a meaning, surely, that may be expressed in ordinary psychological language.

What follows is a slight attempt in the direction of giving such an expression to a few of the technicalities of common deductive logic. We shall discuss, first, the psychological nature of a logical term; second, the nature of judgment, and third, the laws of thought, the syllogism, and logical fallacy. I need only add that the discussion is not intended anywhere to trench on epistemological grounds.

First, about terms. What is there in consciousness that constitutes the general or class idea, the logical term? For instance, what presents itself to your consciousness when I use the word 'horse'? At the outset, naturally, the word itself. A complex of predominantly sound sensations, if it is heard; of sight sensations, if it is read; of movement sensations from the vocal organs, if it is uttered; while if it were merely thought of, any one of the three classes of sensations might predominate, according as you belonged to the visual, auditory, or muscular type. Now, after the word, what next? In many cases nothing. What often baffles an attempt to study introspectively the process of thinking is the fact that it so frequently consists in mere associations of words. Nine times out of ten, when you use the word 'horse,' another word will follow it so rapidly that only the name, not the meaning, gets into consciousness. But suppose the meaning does follow: what is the meaning, psychologically regarded? For me, in the case of the concept 'horse,' there succeeds to the word a vague schematic picture, the general outline of a four-footed animal of a certain definite shape but an indefinite or rather a greyish colour. By directing my attention to the various parts of this schematic image, I can bring into clear consciousness many of the properties which belong to all horses, such as 'four legs,' 'long neck,' 'mane,' etc. Next, certain words are called up by association, filling out the phrase "The horse is or has ——" so and so: words which do not correspond to anything my attention is able to analyse out of the just-mentioned schema, but which I have been taught to associate with the word 'horse,' such as the words 'graminivorous,' 'mammal,' etc. They are words that stand for some previous mental analysis which discovered in individual horses the qualities thus named. Lastly, the word calls up in my mind one or several images of particular horses with which I am acquainted or of which I have heard. In some cases one of these individual associations might be so recent or vivid that it would be instantly suggested by the name, and would entirely swamp the schema and the word associations. This would be especially true, of course, where one is personally acquainted with but a single specimen of the class. More often, however, one association succeeds another.

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We have thus four distinct elements, so to speak, in the conscious state which constitutes a general idea, a logical term. First, there is that compound of sight, sound, and movement sensations, in various proportions as regards vividness, which we call the name. Secondly, a vague schema or picture, in which the attention may analyse out elements that are common to all members of the class. Thirdly, certain associations, chiefly verbal, representing the result of some previous analysis. Fourthly, the memory images of individual instances of the class. I do not mean to say that all four of these processes are always present: that is not necessarily true of any except the first, the name. Probably the second, the schema, is the one most frequently missing; but that it may exist, in spite of nominalism, for persons of ordinary visualising power, is clear from my own introspection.

Now, logic tells us that every general idea or concept may be viewed under two aspects, as regards either its extension or its intension. The extension of a term consists in the number of individual things to which the term applies. Its intension consists in the properties or qualities possessed in common by all these class-members. What, then, do the words 'intension' and 'extension' signify for the complex conscious state which we have found to be the psychological equivalent of the logical concept? It is not difficult to determine. The intension of the term 'horse' consists in those elements which my attention has been able to analyse out of the schematic image suggested by the word, and also it consists of those verbal associations which represent the results of an analysis previously performed by me or others. Sometimes only verbal associations are present; that is, instead of having the vague picture of a horse before me, and discovering in it four legs, a mane, a tail, I may simply have the words 'four legs,' 'mane,' 'tail' suggested.

As for the extension of the term 'horse,' so far as it is represented in consciousness, it obviously consists in the numerous and fluctuating associations of individual horses that we either know or have heard of. The familiar principle of the relation between extension and intension, "as the intension is diminished the extension is increased," would then become, expressed in psychological language: "The fewer the elements analysable out of the schema suggested by a general word, the fewer verbal associations representing the results of a previous analysis, the greater the number of associated instances that are liable to be called up". The reason for this is evident: a word which is associated with a few qualities only will, owing to the variety of nature, be associated with a greater number of objects than one which is connected with a larger group of qualities.

There is one more point to notice about the logical term. Suppose that all the four constituent parts of the total mental state corresponding to it are present: is it the name, the first part, or the schema, the second part, that suggests the individual in-

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stances? Undoubtedly, it would appear, the name. The schema tends to fall apart into its elements if dwelt upon by the attention, and when it ceases to be a unit, each element would naturally suggest its own set of associations. Thus the element 'four legs' in a horse might suggest other quadrupeds, if the word 'horse' did not dominate the whole conscious state, and suggest only those individual objects with which it is associated. Psychologically, it is the name-word that holds any group of elements together and makes it act as a unit in determining associations.

We have next to consider the nature of judgment, psychologically regarded. The question resolves itself into this: What mental process is associated with the word 'is' or 'are'? What is the state of consciousness when we declare that A *is* B? The fundamental process of mind involved in judgment would seem to be the process by which in a complex conscious state a certain element is fixed upon, analysed out, by the attention, and thus given a greater clearness in consciousness than it had before. We see a flower, a rose; the attention is directed upon the colour element in the total presentation; to our first complex conscious state representing the whole flower, there succeeds one in which the sensation 'white' has assumed a predominance over the other elements, and we express the transition from the first state to the second, the analysis by attention of the sensation 'white' out of the presentation 'rose,' by saying, "The rose *is* white". This is the typical judgment. If the subject is a general or class idea, the act of judgment is constituted by the analysis on the part of attention of the schema, and we say, "The horse is ——" or "Horses are quadrupeds," that part of the schema representing the horse's four legs having assumed prominence in the total mental state. Or, lastly, we have a great many words associated with the name A, in the formula 'A *is* B,' these words being all names of elements which have been discovered in A by some previous attentional analysis, as, for instance, "The rose is exogenous". We might venture this general statement: Except where the judgment is the conclusion of a syllogism, the use of the copula *is* always represents the emergence into greater clearness of one of the elements in a complex conscious state; or else the copula forms part of a verbal formula, a word association, representing such a process of attentional analysis previously performed. The psychological nature of the conclusion of a syllogism will be considered later.

Before passing on to the reasoning process proper, it may be well to see what psychological expression can be given to those venerable principles known as the Laws of Thought, and whether such an expression will constitute a reduction of them from their time-honoured position as ultimates. Let us take first the principle of contradiction: a thing cannot both be and not be. What this statement really says is that the same attribute cannot be at once present and absent in the same subject. A cannot be both

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B and not B. Now, by what psychological process should we investigate whether a thing has or has not a given characteristic? Required to find whether a rose is white. There would be two principal elements in one's total conscious state on beginning such an investigation. First, there would be, rather towards the outskirts of consciousness, so to speak, the idea—centrally excited sensation—of white already present; secondly, there would be in the focus of attention the idea or actual perception of the flower. The attention is concentrated on the colour element of the flower. This element either corresponds to, strengthens, the obscure idea of white already present, or it does not. It cannot both correspond and fail to correspond. In psychological terms, then, the law of contradiction will become: In any complex conscious state, the attention cannot both discover and fail to discover the same element. Similarly, the law of excluded middle, A is either B or not B, will become: In any complex conscious state, the attention must either discover or fail to discover the same element. It is obvious that these statements are merely the original laws in a new guise, and I believe that no psychological *explanation* of the laws of thought can be given.

We come at length to the process of syllogistic reasoning. Let us take as an introductory example any ordinary syllogism in Barbara for instance, one whose logical formulation would be: All endogens have parallel-veined leaves: This plant is an endogen: This plant has or will have parallel-veined leaves. The actual mental process corresponding to this formula would be something like the following. The minor term 'this plant' would be present to consciousness either in idea or in actual perception. There would also be a vaguer idea of the major term 'parallel-veined leaves,' which it is required to find in the minor term. As Prof. James puts it, "P overshadows the process from the start". The attention having been directed upon the various distinguishable elements in the minor term, the weak excitation of the major term fails to be strengthened and reinforced: in other words, the major term is not discovered as one of the elements in the minor term. But this process of analysis brings into clearer consciousness certain other elements forming part of the schema which is associated with the word 'endogen'. The minor premise, "This plant is an endogen," would thus express the act of attentional analysis by which the middle term is discovered in the minor term. Notice that in all actual reasoning, the minor premise precedes the major. The schema 'endogen' having thus been brought into consciousness, the element 'parallel-veined leaves' is readily discovered in it by the attention, and we have the major premise, "All endogens have parallel-veined leaves". We may put off considering the conclusion until a few instances of fallacy have been discussed.

First, the fallacy known as 'undistributed middle,' *e.g.*, All sparrows are vertebrates, All birds are vertebrates, All birds are

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sparrows. Here again the middle term 'vertebrate' stands for certain elements which the attention analyses out of the total conscious state 'birds'. Now by what process does the schema 'vertebrate' when it has been suggested call up the elements corresponding to 'sparrows'? Obviously not by attentional analysis, but by that case of association where a comparatively simple mental state recalls what was its context on some previous occurrence: the element 'vertebrate' having once formed part of the more complex conscious state 'sparrow' now recalls the latter. But the element 'vertebrate' has formed part of other complex states besides sparrow, for instance, robin, horse. Many of these rise more or less distinctly into consciousness in a kaleidoscopic fashion like that of the individual instances that follow a general word—that is, we think of the other vertebrates which are not sparrows. The difference then between the mental process of the valid syllogism in Barbara and the case of undistributed middle seems to be that while in the former the major term is one of the elements in the more complex conscious state represented by the middle term, and may be analysed out by the attention, in the latter case the middle term suggests the major as part of a complex state suggests the whole. The result is that several such associations occur, each having equal claims on the attention; whenever we have such confusion, that is, whenever the attention is the subject of conflicting claims, there is unpleasant feeling, and the unpleasant feeling thus produced constitutes psychologically the 'wrongness' of the syllogism. There are, of course, arguments where the middle term suggests the major as a part suggesting the whole, but where the shifting associations do not occur because the major term represents the only context in which the middle term is ever found. An instance would be: The metal having an atomic weight of 197 is Au; This metal has an atomic weight of 197; This metal is Au. Here there is no feeling of wrongness, because no other context associations but 'gold' are suggested by the property 'atomic weight 197'.

Secondly, the fallacy called illicit process of the major term. This fallacy, we know, implies a negative word. The following may serve as an example: All Church property is exempt from taxation; This is not Church property; This is therefore not exempt. The mental process here would begin with the presence in consciousness of the idea or actual perception 'this property,' and the idea 'exempt,' which is not directly discoverable in the total 'this property'. 'Exempt' suggests 'church property,' again, as one element of a complex state suggests the whole; again we have other ideas similarly associated, such as 'public school property,' occurring to the mind, and the unpleasantness or wrongness of the process is due to the confused consciousness that there are other kinds of property besides church property which are exempt from taxation. Here, too, there are cases where the middle term is the only known context in which the

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major occurs; no other context is suggested, and the feeling of 'wrongness' is not present. For instance, the syllogism would be quite correct if we were to assume as our major premise, "*Only* church property is exempt from taxation".

Take lastly an example of illicit process of the minor term: "The Apaches are fierce; they are Indians, therefore all Indians are fierce". "No," we say at once, "there are other Indians besides Apaches." Here the minor term, with which the psychological process always begins, has suggested the middle term because the characteristics represented by the word 'Indian' are elements in the total state 'Apache,' being also, however, elements in other complex states which at once occur to the mind.

We find, in short, that in each one of the chief logical fallacies the objectionable point in the total mental process is that either the middle term suggests the major, or the major the middle, or the minor the middle, by that form of association in which a part reproduces the whole, and where other similarly related ideas are also suggested, tending to cause the unpleasant feeling which always accompanies mental confusion, a distraction of the attention in several different directions. The only cases of argument where this does not happen are two: either the association of whole with part does not occur in the total mental process, the middle term being found in the minor by attentional analysis, and the major being similarly analysed out of the middle term, as in any syllogism in Barbara; or the association between part and whole does occur, but is an invariable, a fixed association, the case of an element suggesting the only context in which it is ever found. How then shall we describe the mental process resulting in a judgment concluded from a syllogism? Somewhat like this: The verbal formula A is B may mean that B has been discovered as one of the elements in a more complex mental state, the middle term, which is itself analysable out of A; or it may mean that A has suggested by an invariable association of part with whole a context in which B is contained as an element; or, lastly, that some element discoverable in A is thus associated with B. It is always to be remembered that the whole reasoning process may and most frequently does take place entirely by means of word associations. Thus, very often, instead of discovering 'vertebrate' in 'bird' by attentional analysis, we simply recall the phrase "Birds are vertebrates"; instead of having the general idea 'Apache' suggested by 'Indian,' the words "Apaches are Indians" occur to the mind. But the original process out of which these word associations have grown is certainly something like what has just been described. The unpleasant feeling of the wrongness of a syllogism has become, too, by emotional transference, attached to the *form* of the mental process which constitutes a fallacious syllogism, and may be aroused when the conflicting associations are not in themselves strong enough



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to produce the unpleasantness of confusion. Further, when a fallacy is written in technical form on the blackboard and recognised by the student, the process is quite different; and probably consists merely in calling up by the look of the sentences the word 'wrong' and the name of the appropriate fallacy, the word 'wrong' being itself unpleasantly toned. That the unpleasantness of a logically wrong syllogism originates, however, in the unpleasantness of confusion has been confirmed to the writer's satisfaction by questions put to students untrained in logic. Their vague recognition of the incorrectness of such an argument as that about the Apaches always resolves itself into the thought of the Indians who are not Apaches.

MARGARET WASHBURN.

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## V.—CRITICAL NOTICES.

*Social and Ethical Interpretations in Mental Development: a Study in Social Psychology.* By Prof. J. M. Baldwin. New York: Macmillan & Co., 1897. Pp. xiv., 574.

There is no doubt that in this book we have a valuable contribution towards the literature of a problem which may perhaps be considered *the* problem of the age—the problem, that is, of the relation between the individual and society. Unfortunately Prof. Baldwin has published his work in a form in which it is difficult for the reviewer to do justice to it. The book consists neither of a series of essays, each one of which could be considered on its own merits; nor yet is it such a consecutive development of a subject as can be followed and treated as one argument. Part of it is quoted from a previous book, part consists of reprinted articles, and part of an essay written for the Royal Academy of Denmark. These various parts form chapters amongst a good many others which are presumably new in their present form, and intended to serve as connecting links. The result is inevitably a certain amount of incoherency, which makes it difficult to give an adequately reasoned account of the contents of the book.

But the ideas with which Prof. Baldwin deals are so well worth considering, and in many cases so well considered, that perhaps the best way of attracting the reader will be to take some of them as they are given, more or less disconnectedly, and try to indicate the author's views upon each.

Perhaps the fundamental idea, as well as the most successfully established, is that of the nature of society. Much has been said and written about the analogy of society to an organism; but the truer analogy is that of a psychological organisation. This has of course been said before; Prof. Giddings has urged that a society is something as much higher and more complex than an organism as an organism is higher and more complex than inorganic matter, that it is an organisation, a complex of psychical relations; and Plato explained the organisation of a society by reference to the organisation of the soul. But it is a point which needs emphasising in face of the tendency to explain higher phenomena by lower, and to reduce all explanation to the type of physical causation.

Society then is analogous to a psychological organisation. But social organisation may be regarded also as a process, and the

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twofold question arises: What is it which is organised, and how is it done? In Prof. Baldwin's words, what is (1) the *matter*, and (2) the *functional method* of organisation of the given matter.

The answer to the first half of the question is that "the matter of social organisation consists of thoughts; by which is meant all sorts of intellectual states, such as imaginations, knowledges, and informations". This matter has its origin in the mind of individuals, and becomes social when generalised by communication to the minds of other individuals. So far the author claims the support of Hegel; but he claims also that in his answer to the second half of the question he supplies a link which is lacking to Hegel, "the bridge from the private thought to the public thought".

That answer he finds in the "*imitative process*" so popular just now in France and America. "Society grows by imitative generalisation of the thoughts of individuals." But other supporters of the imitation theory it would seem have failed to give a complete explanation of society because they have neglected to say what it is which is *imitable;* so that it has been reserved for Prof. Baldwin to bring together the two aspects of the question and find their complete answer.

This is not the place to enter upon a criticism of the imitation theory, with all which is implied and omitted in it; but accepting for the moment the position that the matter of social organisation is exclusively "thoughts," it is fair to ask whether these thoughts must not in their organisation obey the laws of "thought" in general. No doubt there is an element which may be called imitation in the way in which individuals receive the thoughts one from another, but that is another thing. The point may be illustrated by the action of a committee in the development of some definite piece of work; each member is present with a certain situation in his mind, which has got there—say by a process including a certain amount of imitation. The situation is then developed by suggestions, which are accepted or rejected according as they can be shown to be organisable, appropriate, capable of developing it; the imitation in this process, if there is any, lies only in the way these suggestions pass from mind to mind, and is present just as much in the rejected as in the accepted suggestions. But the truly organising function is found when the appropriate suggestions become a part of the situation, modifying and developing it; and it is these thoughts alone which survive and become a part of the social matter. In other words, the organisation of thought is not the same thing, even in the individual mind, as the process by which individuals receive communications from others; still less is it the same thing on the higher level of social life.

The first chapter on the "Self-Conscious Person" is an interesting account of the growth of the self. The play between the Ego and the Alter, the mutual response and "imitation," the interpretation of my self by what I see in you, and of your self by what I know in me, all this gives rise to the formation of an idea of Self

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which is really identical in Ego and Alter, and to which Prof. Baldwin gives the name of the Socius. This common element or Socius is essentially social; it has its origin in the play of "imitation" between individuals, and is the unit from which society is built up; and inasmuch as every self is such a Socius, compounded of both *ego* and *alter*, we get the welcome conclusion that altruistic sentiments are every bit as rational and natural as egoistic. The difficulty which strikes us about this treatment is only, that in the desire to press to its uttermost the theory of imitation, the social element in the self is made to assume a derivative aspect; as if human beings were originally indifferent atoms in which the social element must be superinduced. This point of view comes out in the treatment of play; both in the child and in primitive man. Take the following quotation: "Primitive man, we are told, indulged to a remarkable extent in games, dances, amusements of a co-operative character". We should expect that the commentator, who was really convinced of the essential sociality of man, would point to this as a proof of it, and are taken aback when we go on to read: "This must have been a constant training to him in the benefits of sociality," as if sociality were something alien to him which he had to be taught to like. In the same way the play of children, instead of being dwelt upon as proof of their social nature, is mainly treated as giving the child a constant opportunity for imitative learning and invention. It is, of course, mainly a question of emphasis; both aspects are present in the phenomena of play; but we should have expected a writer who occupies Prof. Baldwin's position on the fundamental issue to have emphasised the aspect of solidarity as against that of atomism, had it not been for the claims of "Imitation".

I find a difficulty again in accepting Prof. Baldwin's principle of Social Heredity as he presents it. The whole chapter on "The Social Person" is excellent in so far as it is descriptive of the way in which the individual enters into his social inheritance of knowledge. But "heredity" is generally used as a technical term, definitely opposed to "acquirement," and it seems inconvenient to obliterate the distinction; "let us call this general fact, that in much of his personal growth he is indebted to society, the fact of 'Social Heredity,'" writes Prof. Baldwin. But why? It is not enough to say that the child learns to speak, write, read, etc., "just as well as if he had received an instinct for that activity at birth from his father and mother". It may do "just as well" to acquire as to inherit; but that does not alter the distinction between acquirement and heredity. Moreover, insistence on this point seems to force Prof. Baldwin into the awkward position of attributing all crime to physical heredity alone, perhaps the most pessimistic utterance that has ever yet been made in criminology. If Social Heredity is really as inevitable as physical heredity (see p. 60) it would be difficult to get over the contradiction involved in society repressing by punishment or annihilation the forms of

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consciousness necessarily developed by it. But the picture we are given of the man born with tendencies which lead him to commit crime, when given as an exclusive—or indeed a principal—account of the origin of crime, sounds very unreal when we remember to what a large extent crime is a matter of education. Take this sentence from the work of an expert in criminology: "In this country the criminal calling does not descend in the majority of cases from father to son. It descends by apprenticeship, and not, as a rule, by parenthood."[1] In other words, crime is acquired, not inherited; and just for this reason it is not inevitable.

We do not feel satisfied, again, that Prof. Baldwin has shown sufficient reason for extending the meaning of the technical term "Sanction" to cover every cause of action. "A sanction," he defines, "is any ground or reason which is adequate to initiate action, whether the actor be conscious or not that this is the ground or reason of the resulting action." This looks like the last step in the degradation of a term which began with a quite definite meaning of its own, and has had a very interesting history. "A sanction properly so called," writes Austin, "is an evil annexed to a command." Bentham began the confusion by extending it to include *physical sanctions*, and Mill carried it further. Austin's protest against Bentham seems in place here: "By the term *sanction*, as it is now restricted, the evils enforcing compliance with laws imperative and proper, or with the closely analogous laws which opinion sets or imposes, are distinguished from other evils briefly and commodiously. If the term were commonly extended to these physical or natural evils, this advantage would be lost. The term would then comprehend every possible evil which a man may bring upon himself by his own voluntary conduct. The term would then comprehend every contingent evil which can work on the will or desires as a motive to action or forbearance." The confusion has now been carried to an extent which those who began it would themselves have repudiated; and it seems only fair that those who have stolen the term for their own purposes should provide another at least equally "brief and commodious" to do the work it used to do.

Perhaps the most original chapters in the book are those which deal with the attempt to solve the two problems "whether the child's mental development recapitulates the stages of mental development in the animal world, and second, whether it then goes on to show, or to recapitulate, the stages through which the human mind, after it arose in history, has passed in our race development". This application of the conception of phylogenesis in the psychical world seems beset with difficulties, owing to the very hypothetical nature of the terms of the comparison. In the physiological world there are, at any rate, definite tangible facts present upon which to base a theory; but in dealing with states

[1] Morrison, *Juvenile Offenders*.

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of mind so elementary that they have never taken shape in institutions of any kind we are dealing with very uncertain factors. The child's mental development is itself very hypothetical, we can only interpret it, and no one but the child could say how often we misinterpret it. Mental development in the animal world is still more hypothetical; and the earlier stages through which the human mind has passed are hardly less so. Is there, for instance, any sufficient reason for the hypothesis that the first state of humanity was one of universal hostility, and that only at a later stage did the possibility of living at peace with his fellows occur to man? (p. 214). But the difficulties of the subject only serve to make this chapter the more suggestive and interesting, and it is perhaps too soon as yet to expect any very definite result in this direction.

We have only been able to touch upon a few of the many subjects dealt with by Prof. Baldwin; for the remainder we must refer readers to the book itself, recommending especially the sections on Social Emotion and the Theory of Mob-Action, which seem to us an excellent summary and criticism of this new branch of psychological inquiry.

HELEN BOSANQUET.

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*Practical Ethics; a Collection of Addresses and Essays.* By HENRY SIDGWICK, Knightbridge Professor of Moral Philosophy in the University of Cambridge. "The Ethical Library." London: Swan Sonnenschein & Co., Ltd., 1898. Pp. viii., 260.

"THE greater part of the present volume consists of addresses delivered before one or other of the Ethical Societies that were founded some ten years ago in London and Cambridge." These addresses, with one exception, have already appeared in the *International Journal of Ethics;* they are here supplemented by four other papers on kindred subjects, some of which are now published for the first time. "Practical Ethics," as here understood and exemplified, is identical with Casuistry—in denotation if not in connotation. It is the discussion of what is right and what is wrong in such matters as the conduct of war, the breaking and keeping of treaties, religious conformity, luxury. Since Pascal attacked the Jesuit doctrine of "Probabilism," Casuistry has had an evil reputation outside certain theological circles. But a distinction should surely be recognised between manuals for spiritual directors which profess to settle the minutiæ of conduct on the authority of sacred texts interpreted by ecclesiastical doctors—doctors who often differ, as the proverb says—and the discussion on grounds of social utility of the general principles according to which accepted moral ideas are to be applied in

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practice to special cases. Few, if any, reflective moralists would now accept that crude type of intuitionism or "common sense" ethics, according to which the plain man's conscience guides him rightly in every particular case—an opinion which may be regarded as the extreme of Protestant individualism applied to conduct, "Every man his own Pope and every man infallible"—an opinion which, if seriously taken, would make, not only moral philosophy, but morality impossible. But unless we accept such an individualistic theory of conscience, we must admit the legitimacy of a discussion of the question, "how far, in the particular circumstances of certain classes of persons, the common good demands a special interpretation or modification of some generally accepted moral rule" (p. 18). And in this sense Casuistry must continue to form a part of any complete treatment of Ethics. Mr. F. H. Bradley has been too hasty in burying and singing the elegy both of casuistry and of the practical use of the syllogistic logic in testing reasonings (*Logic*, p. 247). The moralist cannot provide every one with a ready-made guide to conduct in every detail, any more than the logician can provide an art of reasoning which will serve as an instrument for discovering truth; but, whether the ethical end be defined as "perfection of character," or as "self-realisation," or as "the general good," or as "the greatest happiness of the greatest number," or as "the efficiency of the social organism," the moralist may fairly be expected to show how his principle will apply to the solution of difficult cases of conscience. Of course the solution cannot be absolutely precise and definite—that would require detailed knowledge of the minutest particulars of every individual case. This is unattainable; and so the solution is only an assertion of what is true ὡς ἐπὶ τὸ πολύ, as Aristotle says and as Prof. Sidgwick means, I think, to recognise (*e.g.* on p. 16) when he points out that the work of an ethical society must lie in the region of "middle axioms," not descending to the particulars of individual conduct nor (for to this other limitation he also holds) rising to the discussion of ultimate philosophical principles. Referring in a most interesting passage to his own experience of "the Metaphysical Society" (pp. 2-4), Prof. Sidgwick argues that philosophical discussion, whatever good social effects it may have, is not likely to lead to intellectual agreement, and that a society dealing with problems of practical ethics should not attempt to "get to the bottom of things". It is quite true that a general agreement in practical principles may be found among the adherents of different systems of moral philosophy, when they are dealing with immediate practical decisions on matters of political, or social, or personal duty; but when any really serious discussion of difficult problems begins, is it possible to keep entirely off philosophical questions, and is not such discussion just the most valuable means of testing the truth of different ethical theories, as Prof. Sidgwick practically acknowledges by much of his own procedure in the *Methods of Ethics*?

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How far any one can carry on ethical discussion apart from philosophical controversy is probably very much a matter of temperament and early training. Some persons can move serenely all their lives among "middle axioms" and are not keenly sensitive to intellectual contradictions; others, often without due preparation, insist on digging down to "fundamentals".

Prof. Sidgwick himself has throughout his discussions assumed, just as he did in his *Elements of Politics*, the ethical doctrine of his *Methods of Ethics*. Fortunately, Utilitarianism of this broad type comes in most matters sufficiently near to the ethics of evolution, or to a doctrine like that of Green which identifies self-realisation with the common good, to make it serve as a convenient basis for practical discussion. But there seem to be some matters where the philosophical basis makes a considerable difference. One of the papers in the volume before us which has most philosophical interest is that on "Public Morality," by which is here meant "prevalent opinions as to right and wrong in public conduct; that is, primarily in the conduct of governments—whether in relation to the members of the states governed, or in dealings with other states" (p. 53). Prof. Sidgwick quotes from a German writer what he calls the "Neo-Machiavellian" utterances: "The state is self-sufficient. . . . Self-devotion is the principle for the individual, self-assertion for the state. . . . The maintenance of the state justifies every sacrifice and is superior to every moral rule" (pp. 64, 65). Now this particular German appears to be under the influence of the patriotic intoxication produced (naturally enough) in so many of his countrymen by the war of 1870 and the realisation of a united German Empire: and his words are a little wild. But do they not admit of a sane interpretation, if we take a sufficiently wide conception of "the state"? "I have never seen," says Prof. Sidgwick, "nor can I conceive any ethical reasoning that will provide even a plausible basis for the compound proposition that a man is bound to sacrifice his private interest to that of the group of human beings constituting his state, but that neither he nor they are under any similar obligation to the rest of mankind" (p. 68). In this sentence Prof. Sidgwick seems to be assuming as indisputable the Benthamist doctrine which takes for granted that all mankind are to be reckoned as equal units in our moral judgments. This is a philosophical dogma which may conceivably be defended as the truest and highest; but it has certainly never been the real practical maxim of any considerable number of human beings. It can hardly be counted among the "middle axioms" which ordinarily guide conduct. Conscience in its origin is the tribal-self, the clan-self, the family-self: that it should become the national-self or the state-self means an enormous step in human progress. Only a few philosophers here and there (such as the Cynics) and a few anarchists, religious or otherwise, have actually worked with the idea of the brotherhood and equality of all man-

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kind, regarding their kinsmen and countrymen as much, or as little, as they regarded the Hyperboreans or the Hypernotians. "Humanity at large," so far as it has actually determined ethical judgments, has meant all civilised nations or all Christian nations, though it often means practically only those nations and those social classes to which the individual using the expression belongs. When "*Quod semper, quod ubique, quod ab omnibus*" is used, either as an ecclesiastical or as an ethical rule, it will generally be found that the *omnibus* contains a very limited number of persons, compared with the whole human race or even with all the Christian churches. When uncivilised peoples are taken account of, they are considered as dependent upon, or under the control of, civilised peoples. The general happiness of all human beings cannot serve as the standard of international or of individual conduct, except in so far as we have before us some ideal, however vague, of a world-state, of some federation of mankind, or of a really universal Church. It seems to me that the standard which Prof. Sidgwick accepts, "the general happiness of all the human beings concerned," can only guide us if it is interpreted in terms of the ideal of "a universal political order" which he puts aside as "beyond the range of practical effort" (see *Elements of Politics*, chap. xv., p. 228)—unless, indeed, we are to lay such stress on the words "all *concerned*" and "*practical* effort" as to narrow down the standard so that it falls far short of the "well-being of humanity at large—or, rather, of the whole universe of living things, so far as any practical issue can be raised between these two conceptions of the universal end" (*Practical Ethics*, p. 63). When it is said that the efficiency of the social organism or the welfare of the state is the standard of right conduct, we have still to determine *which* organism, *which* state. A good man may conceivably acquiesce in the extinction of his state, but only if it is being merged or altered into some state more highly developed and more capable of supplying him with the proper social environment in which to realise himself. The common good which can serve as an ethical standard must be the good of a community that can at least be thought of, not the good of an indefinite number of individuals of all kindreds and tongues (including or excluding the unborn, including or excluding monkeys, pigs, tigers, etc.) whose often competing interests have to be added up and balanced by some marvellous moral arithmetic. You can ask men to die for their country, and thousands will readily answer to this call of duty; but you will rouse little enthusiasm or comprehension, if you tell them, that they are under an obligation to sacrifice their private interests in order that $x + 1$ sentient beings may enjoy $y + 1$ pleasures of an average intensity of $z + 1$ (whatever unit of measurement the ethical psychologist may manage to adopt) rather than that $x$ sentient beings should enjoy $y$ pleasures of an average intensity of $z$; and such is a very simple case of the Benthamist formula. Of course it is impossible to discuss the

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fundamental ethical problem here: I only raise it in illustration of the opinion that even Prof. Sidgwick's cautious statement of "middle axioms" does not always conceal the philosophical difficulties lying close behind them. I do not see how we can seriously discuss the question of the ethical limits of patriotism without going on to consider the question, "What is the chief end of man?"

If I am not mistaken, those who first instituted the Ethical Societies in America and introduced them into England intended them to be in the main non-theological churches. In England they have tended on the whole to become more educational and philosophical in character, their object being rather to seek to benefit their members and others by more care in thinking out what is right and what is true than by endeavouring to supply motives for vigorous action to persons who suppose themselves already to know perfectly well what they ought to do. While certainly keeping both aims in view, they have striven to supply light rather than warmth in the region of conduct. Prof. Sidgwick in these addresses seems to encourage this intellectual tendency. He appears to a great extent in the *rôle* of Socrates, asking various puzzling questions and showing that many precepts commonly taken for granted need inquiry and discussion. It is easy for the ardent preacher to say, "All war is wrong," "All luxury is wrong," "When a man ceases to hold any one of the essential doctrines of the creed [it is usually assumed that every one is agreed on what is 'essential'!], he ought to withdraw from the Church". It is more difficult, more profitable, and more necessary to discuss the limits within which arbitration can be applied to the settlement of international disputes, the value for civilisation of many things which are not necessary for the maintenance or even for the immediate social efficiency of human life, the reasonable amount of laxity with which ancient documents can now be honestly accepted as the bonds of religious association. Prof. Sidgwick's lecture on "The Ethics of Religious Conformity" called forth a very striking paper from Mr. Rashdall in the *International Journal of Ethics* (Jan., 1897): and to this Prof. Sidgwick now replies in a paper on "Clerical Veracity"—here printed for the first time. The discussion is of extreme interest, but a consideration of it would be out of place in the pages of MIND.

The last essay in the volume, as Prof. Sidgwick tells us, was written primarily from a psychological rather than from a practical point of view. It is entitled "Unreasonable Action"[1] and is a brief consideration of a subject little noticed in ethical and psychological treatises since the discussion of it is the Seventh Book of the *Nicomachean Ethics*—the question of ἀκρασία, or how people can act contrary to their practical judgment of what they ought to

[1] First published in MIND, N.S., vol. ii., No. 6.

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do. "I mean action," says Prof. Sidgwick, "not *objectively* but *subjectively* unreasonable; *i.e.*, not action which is contrary to *sound* judgment, but action which is done in conscious opposition to the practical judgment of the agent at the time" (p. 236). Is it not necessary to ask here what degree and kind of consciousness is meant and with what precise strictness "at the time" is to be taken? Prof. Sidgwick's conclusion is "that—in the case of reflective persons—a *clear* consciousness that an act is what ought not to be done, accompanying a voluntary determination to do it, is a comparatively rare phenomenon" (p. 253). Still it does occur; but such "pure undisguised wilfulness" in the case of habitually reflective persons "more often takes place in the case of negative action, non-performance of known duty" (p. 259). Such cases are distinguished from those "(1) in which there is at the time no consciousness at all of a conflict between volition and practical judgment; and (2) cases in which such consciousness is present, but only obscurely present" (p. 253). It is difficult to discuss the question briefly and in so abstract a form; but it certainly needs more discussion than it has yet received. So far as I can judge, Aristotle made the most important contribution to the solution of the problem, not so much by his distinction between the minor and major premise in the practical syllogism, to which distinction Prof. Sidgwick expressly refers on p. 254—this is only a preliminary part of his solution—but (1) by insisting on the difference between mere intellectual consciousness or mere formal acceptance of a maxim of conduct and the inherence of it in a person as a part of the self (δεῖ γὰρ συμφῦναι); (2) by urging that intellect alone is not an efficient cause: there must be desire present to make principles operative; and (3) by getting completely beyond the Platonic antithesis (an antithesis still accepted, in words at least, by most practical moralists) between reason and passion or desire, and by showing that even unreasonable action (in the sense of action which the calm reason of the person himself condemns) has its maxims. If I am right in the interpretation which I put on the Aristotelian solution (see MIND, N.S., vol. vi., No. 24), it only needs to be supplemented by a more careful statement of the nature of consciousness to make the *theoretical* difficulty of "unreasonable action" disappear altogether. Our consciousness is never completely "clear". It is not all occupied at any given moment with one idea, nor can the consciousness of one moment be abruptly separated from that of the previous moment. As recent psychologists put it, consciousness is not a series of ideas and feelings, but a stream with waves, in which (to change the metaphor) an idea or feeling may sometimes be marginal and sometimes focal. Even habitually reflective and well-disciplined persons have not their minds entirely occupied with a fixed and coherent set of moral principles. There are odd and incongruous maxims floating about—scum which has risen from the morally lower parts of the social environment, or in-

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stincts surviving from the ape and the tiger, which an older generation would have explained easily as direct suggestions of the devil; and these may happen to come into focus, to rise to the crest of the wave at the moment of action, and so lead to a departure from what the agent himself, not only in calmer moments, but even then in the central current of his mind, considers "reasonable conduct". The exceptional case to which Prof. Sidgwick narrows down the problem seems capable of explanation on principles similar to those which Aristotle employs and which Prof. Sidgwick himself uses in the easier cases of "unreasonable action". It seems to me that all voluntary action is at the moment chosen *sub ratione boni.* Reason and desire are not absolutely opposed, for all volition involves both. To take the very illustration used by Plato (*Rep.*, iv., 439 *e*) in his argument for the distinction of mental faculties (I am not referring to the precise purpose for which Plato uses it, which is the distinction between *θυμός* and *ἐπιθυμία*): The man, who has an inclination to look at the dead bodies and yet thinks he ought not to do so, has two maxims floating in his mind, "Morbid tastes are to be repelled" and "All experience is interesting". The latter maxim is not *per se* bad, but only if it comes into conflict with a better.

May we express a hope that Prof. Sidgwick will find occasion to treat more fully this question of ethical psychology, as well as to extend his specimens of reasonable and useful casuistry?

D. G. RITCHIE.

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*Hallucinations and Illusions: A Study of the Fallacies of Perception.* By EDMUND PARISH. London: Walter Scott, 1897. "Contemporary Science Series." Pp. xiv., 390.

IN *Hallucinations and Illusions* Mr. Edmund Parish presents a scholarly study of an important problem. This study, he tells us, grew out of an examination of the International Census of Waking Hallucinations in the Sane. In the English edition—the German is four years old—he has added new matter and recast certain chapters. The book may now be characterised as a sustained effort to set forth, in the light of the most recent psychical and neurological researches, the "common organic principle which, under whatever diversity of conditions, underlies alike normal and fallacious perception". Every leading proposition of the book lies in a matrix of carefully collated authorities. There is nothing vague, timid or unjustified. From definition to conclusion, the exposition is an orderly sequence of relevant considerations. As a result, Mr. Parish's book is at once an important contribution to the psychology of perception and an admirable introduction to the theory of insanity. Henceforward the student of hallucinations

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and illusions—that ancient battle-ground of futile distinctions—will do well to begin here and work backwards. He will find the profit of following a well-considered generalisation through a vast amount of detail. This generalisation is—that Dissociation of Consciousness is the condition precedent of all forms of fallacious perception. Dissociation—psychological and physiological—offers a scientific formula for every variety of hallucination and illusion. It leaves the detailed determination of causes to the practical alienist. If this generalisation can be substantiated, it will constitute a formidable instrument in the criticism of new researches. Even if it is not demonstrated, it will, as the sequel shows, form a good guiding hypothesis.

In chapter i., Mr. Parish distinguishes "sensory" delusions, where the subject believes he sees or hears something, from "mental," where imagination alone is concerned. He excludes the "universal fallacies of perception," such as the progressively altering size of the rising moon. He enumerates typical forms of illusion, as the phantom leg after amputation, or delusions due to ambiguity of stimuli. The parts commonly assigned to "imagination" and "sense," he reconciles by iteration of Gurney's statement that "all sense perception is ultimately a psychical phenomenon". "Hallucination is perception without an object." The originating cause is of no consequence. "Whether I hallucinate with eyes closed or open, whether I see distinct and vivid images or dim floating shapes, is a matter of no importance" (p. 17). Sane or insane, waking or sleeping, spontaneous or experimental, hallucinations are all equally fallacious perceptions. This term, it is true, implies a theory, but the theory has much evidence behind it, and the term indicates a definite relation to established doctrine. The concomitant physiological process of hallucinatory perception may not always depend on similar conditions of brain, but it probably "rests on analogous functional principles" (p. 17).

Before attacking this physiological problem, Mr. Parish, in chapter ii., analyses more in detail the various pathological and physiological conditions of fallacious perception. He grasps into one concept the delusions of insanity, epilepsy, hysteria, ecstasy, alcohol and other drugs, bodily diseases, dreams, hypnotism and crystal gazing. "Obstructed association is indicated in almost every case" (p. 71). In this the author is in general accord with the standard teaching, as, for instance, in Mr. Bevan Lewis's *Mental Diseases*. The novelty is in the mode of demonstrating how obstructed association serves to establish continuity between the normal and the insane. Even in mania, where the "on-rush of ideas" appears swifter than normal, the appearance is due to the increased flow of verbal images, and this, in turn, to impeded association (p. 72). One has only to watch the muttering delirium of a typhus patient to see that verbal facility may be a symptom of partial cerebral exhaustion. And so through other

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instances. Dissociation varies in form and degree. It may even simulate the "waking" state (p. 75). In this chapter, I may single out the treatment of dreams (p. 50), of the hypnotic parallelism to dreams (p. 57), and of crystal vision (p. 63).

In chapter iii., Mr. Parish applies the notion of dissociation to the massed materials of the International Census. He concludes that the percentage of positive cases is too high to be representative. On the other hand, it is too low to be reliable. The inquiry is too little "intensive"; that is, the details per case are too few for criticism. Then, the returns are in danger of proving too much. For instance, if the "state of consciousness" (p. 90) is accurately recorded as "complete wakefulness," the number of hallucinations is found to be 38 per cent. more than in the borderland between sleeping and waking,—precisely the state known to be most favourable to hallucinations. But in the well-recorded cases, Mr. Parish finds indirect and unintended evidence of dissociation. Besides the moment of waking—notoriously a moment of delusion—there are suggestion (p. 94), fixation of the eyes (p. 95), prolonged reading (p. 98), sewing (p. 97),—all of them capable of causing dissociation. To discuss all the points raised in this chapter would be out of proportion. It is enough to say that the memory factor is shown to be more important than the returns, on the face of them, bear, and that the lapse of time between record and incident seriously impairs the value of the observations. The second point seems to me fatal to a great many cases that yet receive the same consideration as those strictly observed and recorded on the spot. In the non-coincidental cases, the objection is less; but, in the cases where sequence or simultaneity is everything essential, lapse of time means the evanescence of the psychological context and with it the possibility of verification. To judge by the enormous difficulties even of objective observation of sequences, a ghost story ten years old might, to my mind, as well be a thousand. And this apart from another fundamental consideration, that many observers indicate their doubtful competence by their indirect admission that the hallucination is the only experience they have had of the kind. Either hallucination is understood in a very restricted sense or the implications of the admission are completely unconsidered. It may be taken as almost certain that only from bad self-observation can a man say that a full-blown hallucination is his only experience of the kind. He is not thinking of dreams, or after-images, or of other innumerable gradations between normal and fallacious perception.

So far the fact and its probable nature. In chapter iv., Mr. Parish discusses the physiological processes in fallacious perception. The chapter is full of controversial neurology and the argument is not all on one side. After rejecting many varieties of centrifugal theories, Mr. Parish returns to the earlier—and later—hypothesis that the "cortical elements concerned in perception

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and ideation are identical" (p. 142). [The term "element," which emphasises the inter-relation of cortical systems, is preferable, as a rule, to the term "centre," which, though sufficient for practical ends, over-emphasises the *locus*.] On the basis of his assumption, Mr. Parish designs a simple nerve-schema that fits hallucinations, illusions and other forms of dissociation. A sensory stimulus S produces in cortical centre A a process *a* This process *a* irradiates, by association fibres, to other centres "actively associated with A," producing in these the processes $a^1$, $a^2$, $a^3$. If, however, the association fibres are "blocked," the irradiation of process *a* will, following the line of least resistance, affect other centres B, C, D, normally acting, not with centre A, but with centre N, which for the present is assumed to be inactive. The centres B, C, D, thus roused by an unusual stimulus, functionate as if stimulated from their usual centre, N. The result is what I may term a "virtual perception," that is, a hallucination. The schema for an illusion is simpler. If the sensory stimuli are too feeble to cause irradiation from centre A, then the process *a* is deprived of its normal accompaniment of other processes. The result is an abortive perception, that is, an illusion. In hallucination, the stimulus rouses the wrong department; in illusion, the stimulus fails to get beyond the court of first instance. Thus a hallucination is a perception without its normal sensory object; an illusion is a perception uncorrected by its normal central concomitants. In illusions, certain processes are suppressed; in hallucinations, associations are forced. Thus Mr. Parish succeeds in representing every factor in the problem, and at the same time reduces "all false perception to a single physiological type—Esquirol's illusions" (p. 149).

In chapter v., Mr. Parish expounds in detail the factors of fallacious perception. Any condition that releases an element of the nervous grouping from its "compact system" and permits the irradiation of its energies in unused channels results in dissociation, which thus assumes an unlimited variety of forms. For instance, the elements concerned in organic sensations discharge freely into each other; but let an element loose, and there ensues dissociation. No stimulus by itself will produce hallucination; but when a stimulus co-operates with the blocked nervous machinery, hallucination inevitably follows. We have already seen some causes of dissociation. In this chapter, we have illustrations ranging from after-images—the *débris* of sensation—to the fixed hallucinations of melancholia. Undoubtedly, Mr. Parish handles his generalisation with striking effect. From this we pass naturally to the content of fallacious perception (chap. vi.). The main fact emphasised here is that only what passes in through the senses can be reproduced as hallucination. For instance, the blind from birth have not even the "ghost of an idea of light and darkness," and consequently can have no visual hallucinations (p. 186). Practically, this proposition may be

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taken as true; but theoretically, it seems to me a surrender of the inter-association of centres. If we are to assume that the nervous apparatus of vision, in particular the cortical centres, are fully developed, one hesitates to believe, on negative evidence alone, that by no conceivable stimulus could the cortical centres be roused into producing a hallucination even of light. I speak, of course, of the case where the retina is more or less intact, but where the refractive media of the eye are completely opaque to light. If we are to accept Mr. Parish's theory that a centre may be stimulated from other centres not usually acting with it, we must allow the possibility of stimulating, not per sense but per centre, the latent visual centres. Otherwise we must accept the proposition that no cortical centre can be made to begin functioning except through the channel of sense. No doubt it would be difficult to prove the contrary, as it was difficult to prove the electrical excitability of the motor centres, and practically, as I have said, the proposition is true. Many other interesting points in this chapter, in particular "*rapport*" (p. 204) and "negative hallucinations," must go unnoticed.

In chapter vii., we have an account of "reflex hallucinations," the classical instance being "coloured hearing". Many theories are offered of this striking experience, but not one is entirely satisfactory. Except that the "colour" has not been consciously experienced in association with sounds, I find some difficulty in perceiving any real difference between this problem and the problem raised when a spoken word instantly induces a visual coloured image. And it is admitted that the minor instances of the phenomenon may be accounted for by ordinary association (p. 228). Perhaps the most important point in the chapter is the extended meaning given to the "*point de repère*," which must be taken to include any "sensory impression" that may act as a mental cue, and not merely an irritation of a particular sense, or an objective point. It seems to me that too little has been made of the *muscæ volitantes* and the retinal vessels as "*points de repère*". They offer a ready nucleus for moving hallucinations, when figures approach and recede (Gurney: MIND, x., 178).

In chapter viii., perhaps the most striking piece of analysis is the explanation of "audible thinking". This, according to Mr. Parish, is due to slight articulatory movements resulting from central innervation. If the movements are unnoticed, as the movements of the eye are, and yet the voice is heard, the result is a hallucination of an objective voice. This theory has much to support it, and the hypnotic experiment recorded at the end of the chapter makes it all the more convincing. Automatic speech, such as is here concerned, presumes dissociation or "splintering off" (p. 271).

Chapter ix.—telepathic hallucinations—is a searching examination of the fundamental principles involved in "Phantasms of the Living". The chapter must be taken in connection with the



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criticism of waking hallucinations, of which the telepathic cases are special instances. Here again Mr. Parish applies his theory of dissociation. But he has some primary objections. The question of "chance" is fundamental to the method of the investigation. To those accustomed to handle statistics, the temptation to infer causation from a few coincidences is ever present; but the stronger the temptation the more necessary is the intensive analysis of the correlated occurrences. And Mr. Parish maintains, as in the former chapter, that the analysis is too little intensive. Then, is telepathic agency a *vera causa*, or only a hypothesis required by the figures? Are the hallucinations "veridical"? That is, does their content adequately correspond to the fact assumed to be represented? Mr. Parish gives many reasons for doubting the "veridicality" in all the cases (p. 276). As discounting the records, he again emphasises the memory fallacy, the identifying fallacy, the adaptation of correspondence after the fact, and the like. These considerations, if in the charm of the new hypothesis they were not sufficiently allowed for, were doubtless present to the minds of the investigators. A more damaging fact is the dwindling percentage of positive cases as the time of occurrence approaches the time of record. His explanation of this fact seems to me nearer the truth than that afforded by telepathy. "Thus there is nothing for it but to explain the circumstance that the proportion of veridical hallucinations reported as occurring more than ten years ago, is nine times as great as the proportion occurring within the last five years, as indicating that such striking experiences continue to be remembered when a multitude of other hallucinations have passed out of mind. To compare the coincidental and non-coincidental hallucinations is to compare the incomparable, and the attempt must be abandoned as at the outset fruitless" (p. 289). The remarks already made on "waking hallucinations" apply with even greater force to the alleged telepathic cases; for here the essence of the case is causal coincidence of hallucination and objective occurrence: not the mere psychological occurrence itself. If the telepathic hypothesis is to lie, it must exclude all that is due to association, to community of experiences, to what I may name the "mental venue" of the telepathic correlates, to suggestion. The Psychical Research Society endeavours to exclude these factors. But, in the light of what we have already accepted, namely, the identical nature of waking and dreaming hallucination, their exclusion is almost impossible. And that they certainly are not excluded in every case Mr. Parish shows by an analysis of several cases (pp. 293-4). In these he discovers further proof of dissociation. The matter of coincidence seems to me completely altered if dreams and waking hallucinations are to be taken as of the same order and due to similar psycho-physical conditions. If telepathic agency were an established fact, the analysis of the coincidences would be a relatively simple thing. For then

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the coincidences due to that one agency would be as easy to isolate as the coincidence of a dream and a special occurrence is now. There is almost nothing in the records to indicate that the recorders always understood that, for the purpose of the record, the psychological context was as valuable as the isolated occurrence. The physiological context also is not unimportant; but the details of this are practically none. With the experimental cases we get to firmer ground, but the same difficulties have to be faced. It is, however, in this direction that we must look for final confirmation or rejection. I cannot help feeling that the simple and fascinating hypothesis of telepathic agency has led almost all the recorders of phenomena to put less stress on the part possibly due to agencies already known. Mr. Parish's conclusion is that telepathy is—not proven.

In his last chapter—x.—Mr. Parish touches on the familiar difficulties in "explaining" psychical facts by non-psychical facts. As a matter of method, this is outside his problem. He is entitled to assume a psycho-physical organisation, through which certain phenomena emerge. The "blocking" of paths in this mechanism is merely the forming of another mechanism, through which certain similar phenomena emerge. The ultimate question of the relation of neurosis and psychosis does not fall within the scope of a positive research like this. At the same time, one is glad to have indications of the author's final point of view. Everywhere he is careful not to confuse psychological terms or notions with physiological terms or notions, and he never offers a piece of speculative physiology for more than it is. In an appendix he gives analytical tables of the English and Münich Census of Hallucinations. It remains to add that the book is well written and well rendered in English.

W. LESLIE MACKENZIE.

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*Ueber die Raumwahrnehmungen des Tastsinnes. Ein Beitrag zur experimentellen Psychologie.* Von Dr. VICTOR HENRI. Berlin: Verlag von Reuther u. Reichard, 1898. Pp. xii., 228.

WHEN an object impinges on the skin with sufficient force, we have a tactual sensation, characterised by intensity, quality (pressure, pain, heat, cold), duration and spatiality. The present volume is a monograph on the spatial attributes and relations of touch. It embodies a number of original investigations, carried out by Dr. Henri since 1892, and a review of previous work, experimental and theoretical. Pt. i., 'facts,' deals with tactual space under the three headings of extension (stimulus limen, difference limen, correctness of ideas of space), localisation (with contact and movement, visual localisation, localisation with description), and physiology and pathology (reflex localisation, transplantation, etc.). Pt. ii., 'theories,' has a chapter on the origin and development of the spatial moment in tactual sensations, and

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a 'biological and psychological sketch of the spatial perceptions of touch'. A bibliography of 322 titles concludes the book.

*The stimulus limen.*—Dr. Henri enters upon controversial ground at the outset, in his discussion of the methods of minimal changes and of right and wrong cases. He insists that the procedure without knowledge must in every case be followed, and that the values $\Delta r''_o$ and $\Delta r''_u$ must stand, not for judgments of equality, but for judgments "that the difference has ceased to be clear". I believe, on the contrary, that the method of minimal changes implies the procedure with knowledge as certainly as that of right and wrong cases the procedure without knowledge, and that Wundt is right in his choice of liminal values; and I think that Dr. Henri would have reached the same conclusion if he had attempted an analysis of the general factors of expectation and habituation. He makes a very useful suggestion in regard to the variation of the series in minimal changes (p. 10), though he does not mention Miss Washburn's plan of series-arrangement in right and wrong cases. Vierordt's assumption, that the relative delicacy of the 'space sense' at two places on the skin is inversely proportional to the relative distance apart of the compass points which gives rise at the same two places to an equal number of judgments of 'two,' is shown, by an extension of Müller's argument, to be ungrounded.

The results of liminal determinations are given in great detail. The author argues from them that the influence of practice and fatigue is 'central,' an influence exerted not on the sense impressions themselves but on their apprehension. This is so far in agreement with Dr. Tawney's recent hypothesis of the 'auto-suggestive' character of practice. An interesting section discusses Judd's method of successive æsthesiometric contacts. Judd found, as did Czermak before him, that the second point may be perceived at a different place from the first, while the subject is still unable to pass any judgment of direction. It would be well worth while to make a special investigation of this phenomenon in several sense-departments, having in mind Külpe's hypothesis of the reproduction of the general, and Meyer's criticism of it, as regards tonal discrimination, in the *Zeitschrift* (xvi., p. 359 ff.).

Hardly anything has been done upon the question of the *difference limen.*

*Correctness of spatial ideas.*—This section contains an investigation of Aristotle's experiment, by the author, which is excellent both in method and execution. Its result is as follows: "If we touch the terminal phalanges of two fingers, first of all in the normal position of the fingers, and then (using the same points on the skin and similar contacts) when the fingers are crossed, the two points of contact appear to occupy very nearly the same relative position in both cases; that which lies on the right in the normal position seems to lie on the right in the crossed position, although the objective contact is here on the left. If the

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points of contact are very close together in the normal position, they appear to be very close together in the crossed position, although the objective contacts in the latter case are widely apart." The belief that Miss Washburn's blind subject underestimated the distance between the compass points, as normal subjects do (Wundt, Jastrow), leads Dr. Henri to infer that "the phenomenon has no connexion with visual ideas". The inference is invalid; the author's own results (p. 61) indicate that, in normal cases, there is such a connexion. For the blind, the comparison might be between pressure space (passive) and tactual space (active). As a matter of fact, however, the blind subject in question is not mentioned by Miss Washburn in this regard.[1] The 'puzzle mistake' (perception of two points with a single contact) is due, Dr. Henri says, "to purely physiological causes, though its occurrence is considerably influenced by a procedure with knowledge". Dr. Tawney confirms this statement, though he lays somewhat more emphasis on the subjective factor of autosuggestion. A result which calls for further investigation is this: "If the fingers, in their normal position, are touched by parallel lines, the subject frequently judges that the lines enclose an angle".

The chapter on *localisation* is also largely made up of the author's own investigations. The results are hard to summarise, consisting as they do either of exact introspective analyses or of numerical tables: I can touch upon only a few of them here. A good criticism of Miss Parrish's work is that she made no distinction between the real and the apparent (ideated) place of stimulation. Hence, while her results are perfectly reliable, her theory—overestimation of flexions and underestimation of extensions—stands upon an insecure basis. Dr. Henri devised methods for isolating the two factors, of movement and apparent position. I notice that he omits to take account of the attitude and movements of the head, which I have come to think of some importance. He shows, as against Külpe's local-sign theory, that the movement of localisation alone yields a very inaccurate judgment of position. The criticism, however, is not final; the means of primitive localisation may well fail for us, overgrown as they are by later associations. The experiments on visual localisation lead to the (already familiar) conclusion that "the more 'landmarks' there are in the neighbourhood of the point of stimulation, and the more characteristic the tactual sensation

[1] All that Miss Washburn says is that the blind subject underestimated the breadth of the arm as compared with its length. Her explanation is that "obscure muscular associations influenced the judgments". This fact, of course, has nothing to do with visualisation, as Miss Washburn herself points out.—Dr. Henri makes a similar slip in ascribing to "Steinbuch, Wundt, Bain, Mill, Spencer" the belief that the primitive tactual sensation has the three moments of intensity, quality and *duration*. In general, his abstracts and quotations are exceedingly accurate.

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is, the smaller are the errors". It is noteworthy, in view of his absolute rejection of local-sign theories (p. 207 f.), that Dr. Henri speaks throughout this chapter of differences in the 'quality' or 'character' of tactual sensations, as we pass from place to place upon the cutaneous surface—differences which allow of the recognition (*Erkennen*) of the pressure, and which are conditioned by the softness or hardness, thickness or thinness, mobility or immobility of the skin (pp. 106, 122, 126; *cf.* pp. 210, 213). Further research upon Aristotle's experiment shows that with crossed fingers there is a reversal of localisation; the fingers are confused. Külpe should be credited with the statement that just noticeable duality of impressions is not to be identified with just noticeable cutaneous distance (*Outlines*, p. 338).

We come to the chapter on *physiology* and *pathology*. Dr. Henri insists (and the point seems not to have been made before, from the psychological side) that, although certain localising movements are spinal reflexes, reflex localisation is approximate only, and by no means accurate. He discusses eccentric projection in the sense of projection to the extreme periphery (*cf.* the illusions of touch in an amputated extremity), but, curiously, says nothing in the book of eccentric projection in the sense of Lotze's 'sensation of double contact' (*e.g.*, touch at the end of a walking-stick). The subject is treated, though not very satisfactorily, in Dessoir's *Ueber den Hautsinn*, to which Dr. Henri denies the title of 'monograph'. Busch's observations on rhinoplasty (1859) are quoted in full, since, as the author very truly remarks, "they contain facts which are ordinarily overlooked". The general outcome of the chapter is "that the capacity of localisation is in a certain sense independent of the space sense of the skin".

When we pass to the consideration of *theories*, the first question that meets us is: Has the tactual sensation in a primitive consciousness, *e.g.*, in that of the blind new-born child, a moment of spatiality? In other words: Is the spatiality of tactual sensation connate or acquired? The theories are classified by Dr. Henri as follows:

I. Nativistic theories.
   (1) The moment of spatiality is an attribute or partial content of the tactual sensation itself. Hering, Ward, Stumpf, James.
   (2) Spatiality is an immanent attribute of consciousness or mind. Kant, J. Müller, E. H. Weber, Lotze.

II. Genetic theories.
   (1) Tactual spatiality is formed from the primitive moments of intensity and quality, without help from other sense modalities. Herbart, Volkmann, Lipps.
   (2) Spatiality is formed from the primitive moments only by the aid of other modalities. Steinbuch, Wundt, Bain, Spencer, Mill.

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(3) Spatiality arises in the course of development, but is in no sense a composition from non-spatial elements.

Each of the first four theories is subjected to a detailed criticism. It is, again, impossible to summarise the arguments: I note a few points. Against James' statement that space is an element in all sensations, Dr. Henri urges the non-existence of auditory space-ideas in the adult consciousness. As against Stumpf's doctrine that quality and extension are partial contents, he points to the fact that, while change of extension affects quality, change of quality does not necessarily affect extension. Lotze's theory is in no sense empiristic; the spatiality of sensation is a *Fähigkeit* of mind, not an attribute of the sensation itself. The nativistic theories in general "cannot be shown by observation to be right or wrong. That theory is the best which ascribes the fewest attributes to the primitive consciousness, while not conflicting with the facts." Herbart's theory stands in the closest relation to his now untenable theory of reproduction. Moreover, as Lotze pointed out, tones fulfil all the conditions required by him, and yet are not spatial. Lipps' 'spatial fusion' is in reality a construction from elements that are already spatial. Wundt's theory has two sets of facts against it. The muscular and articular sensations set up, in Aristotle's experiment, by the crossing of the fingers ought, according to it, to fuse, and so bring about a correct localisation: they do not. And the complete loss of movement sensations after hemisection of the cord ought to be accompanied by a diminution of accuracy of localisation: they are not. The last of the genetic theories is merely thrown out as a suggestion.

The second question is: Wherein consists the spatial moment of a tactual sensation for the developed consciousness, and how are the results of tactual investigation to be explained? The first member of it is answered by a five-page summary of pt. i.; the second by a critique of Weber's sensation-circles and Lotze's and Wundt's local signs, and a sketch of a new theory. Weber's hypothesis is contradicted by histology, by the facts of cutaneous perception of linear extension, and by Aristotle's experiment. The local-sign theories are also inadequate to these last two groups of facts. An objective consideration brings us to the following. 'Automatic localisation exists, in young children as in adults. The movement of localisation here is a connate spinal reflex; the resulting sensation of contact depends on the higher centres. The localising finger moves about, until it hits the exact spot to be localised: what prompts it to do so, we do not know. The finger stops when the stimulating and the localising contacts are congruent (*sich decken*). The basis of attentive localisation is this automatic movement, though visual ideas enter as secondary factors. Visual and verbal localisations are alike of associative origin. Passive cognition of spatial characters is conditioned partly by physiological differences, partly by association.'

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The strength of the book lies in its wealth of new material, its appreciation of the value of introspection as a check upon figures (pp. 8, 96, 103, 120, etc.) and of the mutual relation of normal and pathological results, and its keenness of criticism. The author is less happy in construction; he seems to dislike theory simply because it is theory (pp. 185, 204). One of the consequences of this attitude is that he fails to give the reader a perspective, to indicate the critical places in the history of haptics; another is a too rigid demarcation of problems, shown, *e.g.*, by the unfortunate severance of haptical from optical theory. But the merits of the work far outmeasure its blemishes. It will add considerably to the reputation, already high, which Dr. Henri enjoys among experimental psychologists.

E. B. TITCHENER.

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*Psychologic Foundations of Education.* By W. T. HARRIS, LL.D., Commissioner of Education, U.S.A New York: D. Appleton & Co., 1898. Pp. 450. (6s.)

EVERY system must have its Primum Mobile, and in his first chapter Dr. Harris postulates the idea of self-activity as fundamental and necessary. "If the reader denies the existence of self-activity, for him psychology does not and cannot exist." He distinguishes between the mental, internal, subjective side of human activity, and that which comes from the environment —he leads us on to see with Hegel that neither excludes the other, but that both are embraced in a more complete whole. He writes: "There is a mental or subjective coefficient as well as an objective one"; "the business of psychology is to find this subjective coefficient wherever it exists"; again, "psychology is so fundamental that it conditions in large measure all the sciences based on the spiritual nature of man—ethics, theology, politics, sociology, æsthetics, and all forms of philosophy". Thus psychology stands in close relation on the one side to science, specially to physiology, on the other to philosophy. We would fain hope that the *Psychologic Foundations* will supersede some books now placed in the hands of those who seek in our Universities a Teacher's Certificate, and which so far as they are assimilated paralyse the energy by denying self-activity, and destroy the validity of ethical teaching by referring all action to universal environment; it is a great matter to have the issues clearly stated and discussed as in the chapters on "The Fallacy that the Strongest Motive Governs the Will" and on "Freedom *versus* Fate".

The book is divided into three parts—the first deals with the "chief themes of educational psychology treated unsystematically," postponing the systematic treatment, until the student has "some familiarity with the simpler aspects of the principle which furnishes the method". Part ii. deals with the subject systematically. Part iii. includes subjects not usually embraced under the

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head of psychology. Dr. Harris writes: "It has happened that psychology recommended for teachers has been mostly of an individualistic character, the principle of participation in spiritual life being ignored. Hence all allusion to the psychology of society, of nations, of institutions, and especially of art and religion, has been omitted." This last is a very interesting section, but my limits will allow me to touch only upon some of the matters treated in section i.—perhaps I may be allowed to deal with the subsequent sections in a later notice.

This is a book of psychologic foundations of education, and the one upon which the whole is built is the postulate that there is in each living thing a self-activity which is the outcome of an original energy—that in all there is more than reaction to environment, there is a self-activity rising gradually through the spontaneity of the plant into the instinctive or formal freedom of the mere animal—up to the real freedom of the intelligent being, who is capable of action as well as reaction.

It is not denied that self-activity is unthinkable under the "category of quality," in terms of the Understanding—but so is anything in the nature of the absolute, the ultimate—space and time and motion, no less than a First cause, and he quotes the ancient sceptical puzzle which denies the possibility of motion—yet these forms of thought are the foundation on which is based all physical science; it is impossible to rest in the finite, Reason compels us to think of space transcending every boundary and of an absolute First Cause. The Understanding has to do with that which is objective to sense, whilst the Reason "holds types, processes, universals". Recollection corresponds with the former and Memory with the latter in the sense used by our author.

Self-activity is ascribed to all living things, and Dr. Harris frequently refers to Aristotle's treatise, in which soul is in some sense ascribed to plants, and a striking parallel is drawn between digestion and perception. He distinguishes three stages of thought—(1) the merely empirical under the category of Sense-perception, atomism, in which all things are regarded as apart; (2) that in which they are seen under the category of quality, or of the Understanding, as related; (3) under the category of Reason, which finds an ultimate self-activity or self-determination, mind giving unity to the whole; the three stages are classed as atheistic, pantheistic, theistic. "The lowest thinking activity inventories things but neglects relations; the middle stage of thinking inventories relations, forces, and processes, and sees things in their essence, but neglects self-relation or totality. The highest stage of thinking knows that all independent being has the form of life or mind, and that the Absolute is a person; it studies all things to discern traces of the creative energy which is the form of the totality." Dr. Harris dwells frequently on the fatal mistake which those commit who occupy the child too long with mere facts instead of leading him

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to relations and processes; and that of those who in later life rest in these without proceeding to that *prima philosophia* which deals with the absolute, the ultimate. If we stop in the lower stage of mere empiricism, or proceed to the second and see only relations instead of rising into the highest, there is arrest of development.

The chapter which treats of general terms or class names is specially interesting; he approaches the matter in the opposite direction from that of Locke. A concept is fundamentally different from a mental image, or any number of percepts or mental images combined; the percept has to do with the objective, with the here and now; the concept has to do with forms in the Aristotelian sense, as the sum of continuously acting causes; if we may so express it, when we conceive, we see things in their potentialities as becoming —the individual acorn, the sapling, the oak, the forest are one not in perception but in conception. "The word oak signifies this general concept, which corresponds to the deeper reality of energy which reveals itself in the whole process." It is in this that the human intelligence or second stage of thought seems to differ fundamentally from that of the mere animals to whom all things are percepts; the latter perceive only that which is; man can sow the seed, and gather in the harvest, because he sees things not as they are, but as they are becoming. Sense perceives the object, the Understanding relates it; Reason sees not only the object, but the "form" of the activity which produces this object; thus he shows how we may through this thought conciliate the Nominalist and the Realist, "for the force, the process, is more real than the thing, which it originates, changes, outlasts". These are the ὄντως ὄντα in regard to which the physical objects are but as shadows in the cave. Language, too, is possible only, when we have general ideas, concepts not merely percepts.

We have some very interesting passages in which the author distinguishes between the old mechanical teleology, which regarded nature as a machine, and the later evolution or the unfolding of the idea in its larger sense, and we may perhaps see here the influence of Dante, of whose poem our author is a devout student. Thus gravity is the manifestation of the unity of one body with another. The unity is ideal or potential, but its manifestation is real force, real attraction.

I pass over the intervening chapters which deal more with formal logic, and physiological brain functions, to chapters xv. and xvi. on "The Will"—"The Strongest Motive," and "Freedom *versus* Fate," perhaps the most original and important in the whole book.

The first is headed "The Will". "The centre of pure psychology," he writes, "is this principle of self-activity" which has earlier been shown to be a fundamental postulate. It has been found to be the presupposition of all causal action; of all influence of one body upon another; the will is not a presupposition inferred, but the direct and immediate object of our inner conscious-

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ness. We see ourselves as active in volition, originating motion in our bodies, acting on the external world, and setting things in motion to realise thoughts and ideals which we conceive in our minds." The existence of self-activity as mind or will is denied (1) by those who urge that the will is not free because it is ruled by the strongest motive; (2) by those who fix their attention only on the environment.

The author argues that we have in the assumption that the strongest motive determines our will or our action, to take for granted that all reality takes the form of outward perception, and that "a motive is a reality, an existing thing, a force—whereas a motive is a mere possibility, thought, or feeling; when it is realised it ceases to be a motive; it is an ideal of something more desirable than what exists, the motive contains the idea of what is not existent". "I must by my mental activity go out beyond the circle of existence before me, in order to conceive a motive. I must imagine something as happening to the reality, that has not happened, in order to have a motive. The mind, in fact, has to make an abstraction as the first condition for the existence of a motive. The motive is not a real independent thing, but an idea existing in some intelligence which has put an ideal in the place of the real as a product of the activity of that intelligence. To say that a motive constrains the will is therefore to say that something acts before it exists; for the motive has only ideal and not actual existence until it is realised. Thus the will is the creator of the motive as ideal, and of its realisation, and to say that the motive constrains the will is to say that a possible something constrains the actual that creates it, or, in other words, that something acts before it exists."

"In the case of moral motive, the will sets up its own ideal self as motive. In the case of appetite it sets up an ideal condition of some thing or fact as a motive. In the moral ideal the mind conceives the true form of its own highest being—the form of social co-operation with a universe of intelligent beings. The ideal of action that enforces all wills and does not thwart any is the ideal called morality. The author leads us to Kant's definition of right: "So act that thy deed will not contradict itself if it is made the universal act of all intelligent beings"; and in a fine passage, in which Hegelian thought predominates, he shows that the "moral will is free".

"There is a spontaneous or formal will, and a moral or rational will. Both are free so far as the ordinary sense of the word 'free' is concerned, because both are self-active, and both create and use motives. But in a higher sense only the moral will is free, because it alone progressively conquers its environment. It effects this conquest in two ways. First as regards the environment of things and events, the world of material and non-spiritual existence, it makes combinations which result in the production of food, clothing, shelter, and means of intercommunication.

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Secondly as regards the human environment, it makes social combinations by adopting ethical forms—forms in which all may act without contradiction, and with mutual help and co-operation."

The chapter on "Freedom *versus* Fate" deals with those who say, "all things have environments, and are what they are, because necessitated through their environments to be such as they are". "Does freedom presuppose fate as its ground, or, on the other hand, does fate presuppose freedom?"

If they are co-ordinate and equally valid, there is a contradiction in the very nature of our thought. Kant and Fichte apparently come to this result in their psychologies. They assert that the mind arrives at insoluble contradictions, but they affirm that all practical life, all moral life, presupposes that the category of freedom is the ultimate and absolute one. Fate would, according to them, apply only to appearances or phenomena, while freedom would apply to being-in-itself or to all true reality.

The argument of the *reductio ad absurdum* is adopted. First, our author says, let us assume all things necessitated by the universal environment, *i.e.*, by "the totality of conditions," which we call Fate. But "if things change, their change is a proof that there was no constraining necessity in the shape of a totality of existing conditions. There must have been a contingency—this thing had other possibilities of existence, and it was not necessitated to remain in one state of reality rather than some other state which was possible to it. But the category of chance does not explain anything; on the contrary, it needs explanation itself, for that which can change a possible state of a thing into a real state of it must be a causal energy. We have found self-activity, therefore, as the ultimate ground of all change, and of all conditioning necessity as well. The thought of necessity or fate—which is the thought of thing and environment elevated to a universal category, the category of quality—therefore shows itself, when dialectically considered, to be grounded in the idea of freedom. The thought of freedom of the will seems impossible to agnostics and to all people just beginning to think logically. Quality is the category of all external observation, and it seems to be absolute. It contradicts the internal category of self-activity, and the novitiate thinker sets the latter aside, supposing that it is illusory. He can perceive by his senses the actual existence of things with environments, while he cannot even fancy or represent self-activity as having being. But careful reflexion will show him that the two categories do not contradict, but that the category of fate or necessity belongs to a lower order than the category of self-activity—fate is partial; self-activity total. The category of necessity belongs to the realm of effects, phenomena; the category of self-activity belongs to the realm of noumena."

The last chapter of part i. is a short discussion of what has been called the old and new psychology.

DOROTHEA BEALE.

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# VI.—NEW BOOKS.

*Studies in Philosophical Criticism and Construction.* By SYDNEY HERBERT MELLONE, M.A. Lond., D.Sc. Edin. Edinburgh and London: William Blackwood & Sons, 1897. Pp. xxii., 426.

THIS book is the result of much careful thinking. It cannot be said to make any very distinct philosophical advance, but it is well worth reading, because of the thoroughgoing and conscientious manner in which the author defines and faces his problems. The book is difficult to summarise, because its range is so wide. Dr. Mellone deals with the most perplexing and fundamental difficulties of psychology, epistemology, ethics, logic and ontology. His general position is perhaps best brought out in chap. iii., "On the Distinction of Individual and Universal Judgments". He begins by protesting against the logic of abstract identity, and affirms that "every unity, in order to be thinkable at all and more than a mere name, must combine diversity within it" (p. 119). On this basis he criticises Lotze and also Bradley. The criticism of Bradley appears to us to rest on misunderstanding. To say that Bradley proceeds on an abstract view of the principle of identity, is to say the reverse of the truth. He recognises clearly that all identity must include differences; but for this very reason he denies the existence of true identity if and so far as the identity fails to include its differences, so as to exhibit to the eye of reason their necessary connexion with each other. This is the critical principle employed throughout the first part of his book on *Appearance and Reality*. Considered in this light, Dr. Mellone's strictures are irrelevant. But they indicate the peculiarity of Dr. Mellone's own point of view. When he says that identity may be an identity of differences, he does not mean what most people who use this language intend by it. He does not mean to demand that the identity shall so pervade the differences as to account for their connexion. He is merely concerned to deny that difference is incompatible with identity. Thus the only logical inference which he finds himself able to obtain from his principle of identity is that the universe does not consist of absolutely independent beings—"independent in the sense that any one of them would be unaffected by the annihilation of all the rest" (p. 130). From this notion of harmony he distinguishes that of *real* unity or identity. In this *real* sense, "to assert the Unity or Identity of all things is to assert that they are substantially one, that they are modifications of a single complete Life, in which all the variety of actual existences is felt and thought as a whole" (*ibid.*). Such a conception is not an intellectual necessity: "it is a postulate of that direction or mode of intelligence which is called self-consciousness or reflective self-knowledge, by which we become aware—with more or less of clearness, adequacy and truth—of our personal life as a central unity embracing *more* than knowledge" (p. 131).

A great part of the book is occupied in discussing the nature and content of this knowledge "of our personal life as a central unity embracing

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*more* than knowledge". What Dr. Mellone has to say on this subject is very interesting and suggestive, though by no means satisfying. He lays great emphasis on the threefold nature of consciousness, as knowing, feeling, and striving. He discusses with great care and acuteness the manner in which we take cognisance of those constituents of consciousness which are not in their own nature cognitive. It cannot, however, be said that he has succeeded in overcoming the difficulties which he has inherited from Prof. Ward.

There is much interesting matter in Dr. Mellone's book which we cannot here touch upon. His work may be commended to those who are interested in the topics of which it treats.

EDITOR (G. F. S.).

*Dynamic Idealism: an Elementary Course in the Metaphysics of Psychology.* By A. H. LLOYD. Chicago: A. C. McClurg & Co. 1898. Pp. x., 248. ($1.00.)

"The Thinker," says Prof. Lloyd (p. 102), "greater than any medium or any uniform, never can be quite clear, even to himself." The author's thought is clearer to the reader in this volume than it was in his *Citizenship and Salvation;* it is still needlessly obscure. His style is also disfigured by mannerisms (inversions, strange uses of adverbs).

An Introduction gives the writer's general standpoint. "What seems not-self is only the reverse of self. . . . Consciousness is fundamentally commercial. . . . The essence of objectivity is sociality." The current view of the objective—the reality of things, the truth of ideas, the worth of acts—affords a scheme of division for the book, whose three parts thus deal with body, mind and soul respectively.

The 'world of things' is "a system of relations, and has its substantiality in its relational character". It is thus "self-active, animate"; and, because intelligible, intelligent. Change, as substantial expression, fulfilment, is essential to this relational character. The intelligence of the body and the dynamic nature of environment (space) show the dualism of self and not-self as one between organically relating factors. The outside world is a tool "originally in the use of self," or rather "a living mediator". Language, the two-faced object, takes us to the world of ideas.

"Matter and mind are one. Matter as organic is intelligent, mind as dynamic is material or substantial. Soul is the substance in which an organic matter and a dynamic mind are one. Individuality survives decomposition because it is involved in relationship. Adjustment, a biological term for the life hereafter, is not acquired but original. The self is not a localised entity, but a functional activity. Ideas are actually, vitally mediative; and consciousness, like ideas, is not ornamental but always useful. Self-consciousness is not of any separate self-hood, but of the living medium of the self's expression. The individual is in himself at once a defined force and a responsible will." Interest is that impulse to self-expression which is of the very nature of consciousness. Language, again, takes us from thinking to doing; from mind to soul.

"The typical act is organic interaction, not arbitrary reaction. Will is not materially creative, but responsibly mediative. Personality, actuality of relationship under a new name, is the substance of the world of acts."

Such, in brief outline, is the system of Relationism or Dynamic Idealism, a system which the author has evidently thought through to the bitter end, and which he will presently, we hope, put before the world in more readable form. The book ends with an appendix on Immortality.

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*The Development of the Child.* By N. OPPENHEIM. New York: The Macmillan Co., 1898. Pp. viii., 296. ($1.25.)

Dr. Oppenheim has written a very interesting and timely book. The thesis of the first three chapters ("Facts in the comparative development of the child") is that the child is not, as is commonly thought, a lesser adult, "slightly different, in the details of small size, deficient strength, little experience, from grown men and women," but that it is an organism of an entirely different character from the developed human being. The facts are well marshalled; something in the way of a bibliography or list of references would have been valuable. Chapter iv., on the comparative importance of heredity and environment, emphasises the immense complexity of the conditions of human, as compared with animal life, and teaches that nurture is of far greater significance than nature. Heredity can at most give predisposition, *i.e.*, so constitute a child that it is "a good growing ground, a good culture medium, for a certain sort of impulse". "As a matter of essential construction, men are all very much alike. . . . The medium in which a child is conceived, born, and nourished is of the most telling value." In chapter v., "The place of the primary school in the development of the child," we have an admirable critique of current kindergarten methods, and no less admirable suggestions towards their betterment. Chapter vi. deals with the place of religion in child life. "It is extremely doubtful whether children are capable of anything better than a travesty on matters of really spiritual import. . . . For them especially is the remark true that conduct is three-fourths of life." Applied ethics should replace religious instruction. Chapters vii. and viii. discuss, very sensibly, the value of the child as a witness in suits at law, and the development of the child criminal. Chapter ix. shows the relation of the child's nurture to the production of the genius and the defective. The author thinks that "the idea of overstrain [resulting from the march of civilisation] is quite out of the question. The one thing which is necessary is an improvement in methods which shall keep pace with the varying circumstances of subjective and objective existence." Chapter x., on institutional life for children, insists that "all thought of massing in large institutions should be absolutely put aside". A final chapter, "The profession of maternity," appeals to the masculine critic as eminently sane and healthy. The book is a notable contribution to the literature of "child study".

*Aphasia and other Speech Defects.* By H. CHARLTON BASTIAN, M.A., M.D. Lond., F.R.S. With Illustrations. London: H. K. Lewis, 136 Gower Street, W.C., 1898. Pp. viii., 366.

In common with many physiologists and psychologists, Dr. Bastian maintains that all motor consciousness is of peripheral origin, and he insists that it ought to be called *kinæsthetic* rather than *motor*. But he stands almost alone in his view of the relative insignificance of kinæsthetic experience. A tendency to depreciate it pervades and dominates his whole work. He even refuses to make allowance for individual differences. He accounts for the case of Prof. Stricker by saying that introspection inevitably brings the expressive side of speech into undue prominence. This simply shows how very far Dr. Bastian is from having any inkling of the kind of introspective evidence on which such statements as those of Prof. Stricker are based. It would be as reasonable to account for a toothache as an illusion of introspection.

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With Dr. Bastian, however, the entirely subordinate and dependent function of Broca's centre is a foregone conclusion, which he is concerned to sustain throughout this book. He regards the auditory element of speech as of altogether predominant importance. Destruction of Broca's centre does not involve verbal amnesia so long as the auditory centre remains unimpaired. On the other hand, complete verbal amnesia follows destruction of the auditory centre. Some of the evidence gives Dr. Bastian trouble; in particular, the case recorded by Pick, in which the auditory centres of both hemispheres were destroyed so as to produce complete word-deafness, and yet the power of fluent speech remained. Dr. Bastian says that the left visual word centre must have supplied the place of the auditory word centre. This may or may not be so; there are other possibilities. At any rate, the existence of this case goes with other evidence to show that the auditory word centre does not possess the exclusive importance which Dr. Bastian is inclined to assign to it.

Apart from these controversial points, Dr. Bastian's book is full of good matter, and throughout deserves careful attention from the psychologist.

*The Nature and Development of Animal Intelligence.* By WESLEY MILLS. New York: The Macmillan Co., 1898. Pp. xii., 307. ($2.00; London: T. F. Unwin. 10s. 6d.)

This book contains a number of essays and studies which the writer has already published separately at various times and in various places. Thus brought together, they make up a very useful volume.

Part. i. includes four addresses on the general subject of comparative psychology. Prof. Mills emphasises two points: the need of facts, and the danger of underestimating the 'intelligence' of the higher animals. "The evidence of reasoning power is overwhelming for the upper ranks of animals. . . . There is a certain amount of evidence that some animals can count within narrow limits." "It is more than likely that we much underestimate the capacity of animals to communicate with each other by a language of their own." This attitude seems to be shared by Bethe; but Thorndike's recent work makes against it. Part ii. deals principally with feigning in squirrels, and with hibernation and allied states in animals. "The mental process" in feigning "is a complex of instinct pure and simple, with higher intellectual factors added." Prof. Mills admits, however, that the state has many varieties, and does full justice to the cataplexy theory of Preyer. Hibernation is a 'protective' habit, akin to normal sleep, and by no means fixed and rigid in its nature. Part iii., which the author himself regards as "much the most important part of the book," is a valuable record of personal observations on the young of the dog, cat, rabbit and guinea pig, as well as on chicks and young pigeons. The great importance of these recently published researches has been generally recognised. They set an example which comparative psychologists will do well to follow. Part iv. consists of discussions of instinct, in which (besides Prof. Mills) Profs. Baldwin, Lloyd Morgan and Bumpus take part. All the communications are worth reprinting, and Prof. Bumpus' observations on the young kingbird are excellent. The outcome seems to be that instinctive movements are, at first, much more imperfect than is commonly supposed.

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*The Social Mind and Education.* By G. E. VINCENT. New York: The Macmillan Co., 1897. Pp. 155. ($1.25; London, 4s. 6d.)

This essay attempts at once to be historical, critical and constructive. It is, in consequence, far from easy reading, despite the prefixed summary of the argument; and the text is overloaded with quotations.

Chapter i. deals with the social mind and its development. "In the process of social evolution, men's ideas, judgments and desires have been combined into products which, transmitted from generation to generation, react upon individuals, and are in turn modified by them. These 'capitalisations of experience' and their unceasing reactions" form the social mind. "Philosophy in its socially self-conscious phase represents the effort of a mature collective mind to preserve its unity." There follows (chap. ii.) a discussion of social philosophy as a *scientia scientiarum*. The author examines the general classes of sciences gradually formed in the course of social development, and shows that they are naturally and rationally related in a philosophy of society. We then pass to the parallel of social and individual thought: a parallel which is often denied, in view of the short cuts in ontogeny, but which exists, in the sense that both "begin with an indefinite whole, which is gradually differentiated and progressively integrated"; that, in both, analysis yields to synthesis, and vaguely conscious activity to fully self-conscious effort (chap. iii.). The educational function (chap. iv.) is described as "a purposeful social effort to effect short cuts in the mental development of the individual, as well as to hasten the whole process so that he may in the briefest time and in a thoroughly natural way attain the standpoint of the race, *i.e.*, be intrinsically related to the social tradition". Integration of studies is necessary (chap. v.). No particular study can be the core of such integration; social life, and the student in relation to it, form the real centre. Finally, in chapter vi., a tentative curriculum is presented as a basis for discussion and as a suggestion for definite machinery of instruction. The book ends with a bibliography and a good index.

*Elements of the Science of Religion.* Part I.—Morphological. Being the Gifford Lectures delivered before the University of Edinburgh in 1896. By C. P. TIELE, Theol. D.; Litt. D. (Bonon.); Hon. M.R.A.S., etc. Edinburgh and London: William Blackwood & Sons, 1897. 2 vols. Vol. i. Pp. viii., 302.

Fuller treatment of this work will be deferred until the Second Part can be dealt with. The present volume is concerned with the variety of forms of existence, or different directions of development, of religion. "Each of these forms, by a one-sided elaboration of one leading religious idea, contributes to religious development; none of them singly, but all taken together, represent the religion of a period in the history of mankind" (p. 55). The lowest nature-religions, the highest nature-religions, and the ethical religions, are treated of in lectures iii., iv. and v. under the general heading, "Stages of Development". Then follows (lecture vi.) a discussion of the specifically different directions which may be taken by religions on the same general level of development. Lecture vii. is occupied with "Directions of Development in Particular Religions and in Groups of Kindred Religions". The existence of laws of development in religion is maintained and their nature discussed in lecture viii. The importance of individual initiative is maintained in lecture ix. In x. the general nature of religious development is formulated as an "ever-increasing differentiation, coupled with efforts for reconciliation and unity" (p. 295).



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*Citizenship and Salvation, or Greek and Jew; a Study in the Philosophy of History.* By A. H. Lloyd. Boston: Little, Brown & Co., 1897. Pp. 142.

This little book is full of food for reflexion. One does not need to read far in order to discover the work of a man whose mind is in movement, who is thinking for himself. But, most unfortunately, the style of presentation often comes between writer and reader. Dr. Lloyd tends to express himself by way of formulæ,—a trait to which serious objection need not be taken, *if* the formulæ are set forth with perfect clearness. But this condition happens to be largely unfulfilled. The defect must be traced partly to the author's lack of sense for English style, and partly to his poverty of illustration. It is a thousand pities that a man of evident promise should allow himself to fall into literary habits which will inevitably prevent his being read. In philosophy, more perhaps than in any subject, the medium of expression must be held of the last importance.

The book divides into three parts. First, "The Death of Socrates," containing a philosophy of Greek and Roman civilisation. Secondly, "The Death of Christ," setting forth the Jewish environment, and the relation of the crucifixion to the development of Roman culture. Thirdly, "The Resurrection," which furnishes an interpretation of the influence exercised by Christianity in later times. This last is the most obscure part of the book. Nevertheless, like the other portions, if one will take pains with it, it will be found full of freshness, originality and suggestion. Dr. Lloyd will, perhaps, not take it in ill part if we say that this small work contains matter for a much larger volume. Were he to articulate fully the processes whereby he has arrived at his present conclusions, pay particular attention to his manner of statement, enlarge his stock of illustrations, and shake himself free from a certain paradoxical mannerism, he might produce not merely a good but possibly a great work. The point of view occupied by the writer, to which much of his freshness may be traced, is that of idealistic monism.

*The Meaning of Education, and other Lectures and Addresses.* By N. M. Butler. New York: The Macmillan Co., 1898. Pp. xi., 230.

Prof. Butler has here brought together seven popular essays and addresses of the years 1894-6. The philosophical basis of all is threefold: the author holds, with Wallace,—and, he might have said, with Darwin,—that natural selection seizes upon psychological as well as upon physical variations; he holds, with Fiske, that the long period of human infancy is responsible for the rise of the family, with all its implications; and he holds that any education is a failure which "does not relate itself to the duties and opportunities of citizenship".

The first essay, on "The Meaning of Education," defines education as "a gradual adjustment to the spiritual possessions of the race," and classifies these possessions as scientific, literary, æsthetic, institutional and religious. The second, entitled "What Knowledge is of Most Worth," decides that "the highest and most enduring knowledge is of the things of the spirit". The third, "Is there a New Education?"—discusses the three sources of the study of education, the physiological, psychological (*i.e.*, Herbartian) and sociological. The remaining four, "Democracy and Education," "The American College and the American University," "The Function of the Secondary School," "The Reform of Secondary

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Education in the United States," are of a more technical and concrete type.

Prof. Butler's discussions are sensible and business-like. Occasionally he errs in judgment, as in paralleling "the narrow, plodding specialisation of a Darwin" with that of "Teutonic philologers who are unduly distracted if their investigations cover more than the gerund" (!); and sometimes he exalts his own country on insufficient grounds (pp. 74, 89, etc.). On the whole, the book may rank alongside of President Jordan's *Care and Culture of Men.*

*The Study of Man.* By A. C. HADDON. New York: G. P. Putnam's Sons, 1898; London: Bliss, Sands & Co. (6s.) Pp. xxv., 410. Illustrated.

This is the first volume of the new "Science Series," edited in America by Prof. Cattell and in England by Mr. Beddard. Its contents are of a rather more popular character than the prospectus of the series had led us to expect. "The book is not intended for scientific students," the preface says, "nor for experts, but for the amateur and . . . the intelligent reader." It contains a number of detached essays, all competently written, on Hair and Eye Colour, the Ethnography of the Dordogne District, the Evolution of the Cart, Toys and Games, etc. The last few chapters, on singing, courting and funeral games, take the author into the sphere of ethnic psychology. They are clear and interesting, but present nothing new. The book ends with some practical suggestions for conducting ethnographical investigations in the British Islands, and with two appendices—the one giving Dr. Brinton's classification of the anthropological sciences, the other a table of metric measurements and their equivalents in inches. It would have been well to relegate the numerous references to a final bibliography: the 'intelligent reader' does not want them at the bottom of the page. And the volume is too heavy (considerably over two pounds), and of an awkward shape.

*Memory and its Cultivation.* By F. W. EDRIDGE-GREEN. New York: D. Appleton & Co., 1887. Int. Sci. Ser., No. 78. Pp. 311. Price, $1.50.

This is a disappointing book. Its style may be gauged from the sentence: "The word 'forget' is used here and throughout the following pages, not as having the meaning of an impression having become irretrievably lost, but that the power of recalling it has become temporarily or permanently lost". The mind is made up of thirty-seven faculties. There might be a round forty, but that conjugality "is not likely to influence a man who hates his wife," that sublimity is "a very doubtful faculty," and that the author has never seen an example of the faculty of human nature. There are brain centres of motor and sensory memory, and the cortex is the seat of the faculties. A few references to Cattell's reaction experiments constitute the sole mention of modern psychology. The book ends with a list of practical rules, under one of which this stands as an example: "If I wished to remember the name Middlemarsh, I might think of a house standing alone in the middle of a marsh". But is not the name "Middlemarch"?

*The Philosophy of the Humanities.* By T. FITZ-HUGH. Chicago: University Press, 1897. Pp. 63.

A reprint of three addresses on the subject of the title. "From the standpoint of a voluntaristic metaphysics, the evolution of culture

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[shows] an invariable series of phenomena evolving . . . under the impulse of physical and spiritual stimuli, which find their most typical conceptual expression in the terms geography and religion. . . . The three successive stages of culture-achievement, the social-political, the artistic or imaginative, and the philosophical or reflective stage, unfold themselves in the order of psychological process." Since what holds for the race holds for the individual, the order of presentation, imagination and reflexion can be put to pedagogical use. On this basis the author offers a scheme of organisation of the Latin humanities in secondary education.

*The Formal and Material Elements of Kant's Ethics.* By WILLIAM MORROW WASHINGTON, Ph.D. June, 1898. New York: The Macmillan Co. Pp. 67.

The author of this pamphlet has discovered that it is not always our duty to do the same thing. This appears to be his share in the 'Columbia University Contributions to Philosophy, Psychology and Education'. This is the burden of his criticism on Kant. Kant was seeking by 'a progression from indefinite to definite running through his several works' 'to get a content to his formal principle'; and, as Mr. Washington pathetically informs us (in a bracket), 'He died before he got it'. For the rest, Mr. Washington makes many true and many untrue statements of Kant's doctrine, strung together with child-like inconsequence, following only, quite unintelligently, Kant's order of exposition in the *Grundlegung*, the *Critique*, and the *Metaphysic of Ethics*, respectively. His pamphlet is very earnest, very naïve, and absolutely worthless.

*On Laboratory Arts.* By R. THRELFALL. London: Macmillan & Co., Limited, 1898. Pp. ix., 338. ($1.50; 6s.)

Although written primarily for students of physics, this little book will be found useful by workers in all sorts of laboratories. In spirit and in execution it is admirable. The four chapters deal with glass-blowing, glass-grinding, electroplating and 'miscellaneous processes'; the two appendices with the preparation of Röntgen vacuum tubes and platinising glass. In many respects the work is of direct value to the experimental psychologist.

*The Metaphysic of Experience.* By SHADWORTH H. HODGSON, Hon. LL.D. Edin.; Hon. Fellow, C. C. C., Oxford; F.R.Hist.S.; Past President of the Aristotelian Society. London, New York and Bombay: Longmans, Green & Co., 1898. In Four Books. Pp. xix., 459; viii., 403; viii., 446; viii., 508. Price 36s.

The appearance of these four imposing volumes must be regarded as an event of high importance in the philosophical world. They are the mature outcome of a life-work. It is true that the leading ideas expounded in them have been made more or less familiar by Mr. Hodgson's previous books; but these ideas are here stated and applied with a systematic completeness and coherence, a detailed elaboration, and a power and clearness not to be found in the earlier works. What Mr. Hodgson here gives us is a complete system of philosophy, and no one with any real interest in philosophy can afford to neglect it. Full critical notice will follow.

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*L'Évolution des Idées Générales.* Par TH. RIBOT. Paris: Félix Alcan, 1897. Pp. 260.

M. Ribot's new book is characterised by his accustomed clearness, detail and copious reference to other works. It is published as the first of a series, and will be followed, if circumstances permit, by treatises on the unconscious, on perceptions, on images, on the will, etc. The main object of the present volume is to trace the evolution of the processes of abstraction and generalisation from the level of perception up to the highest concepts. "It is a commonplace truth that Abstraction has its degrees as number has its powers; but it is not enough to make this statement. What is important is to fix these degrees by marks which are clear, objective and not arbitrary." Thus, while M. Ribot lays stress on the fact that the psychology of abstraction and generalisation is, in great measure, a psychology of the unconscious, he explains that an inquiry into the nature of the unconscious would be beyond his immediate purpose. The book is a study of general ideas "in so far as they have an origin traceable to experience, and do not overstep its limits".

Three stages are distinguished in the evolution of general ideas. Abstraction, in its lowest form, is prior to language, though not entirely independent of signs. This is the level of generic images. The growth of language brings us to the *concrete-abstract* period, at which words are almost superfluous, and, later, to the stage at which the word is indispensable, and becomes an instrument of substitution. When the third stage is reached, the word is still a symbol, but is now a substitute only for the conscious part of the process. With the development of the concept, the unconscious content becomes more important and the possibility of substitution is lessened. M. Ribot, with Höffding, regards general ideas as existing in the sense that we can concentrate our attention on certain elements of the individual representation. He describes the psychological nature of the highest concepts as twofold: "a clear and conscious element, which is always the word and sometimes in addition a shred of imagery, and a factor which is obscure and unconscious, but without which symbolic thought is no more than an empty mechanism". General ideas are only a particular case of this correlation of conscious and unconscious elements in psychology: *couples conscients-inconscients* is M. Ribot's own phrase. The evolution from image to concept is a process of simplification of the conscious and amplification of the unconscious element.

The importance to psychology of the study of language is strongly emphasised. The first chapter is devoted to a discussion of the degree of abstraction attained by animals, infants and deaf-mutes, the second to a sketch of the development of language, and the third to the degrees of abstraction accompanied by words which intervene between the generic image and the concept. Here two main stages are distinguished, of which the lower is illustrated by references to the language of inferior races and the more advanced by the history of zoological classification, which shows the progress towards scientific terminology.

The chapter on the higher forms of abstraction gives an account of experiments made with a view to answering this question: When one thinks, hears or reads a general term, what is there in consciousness, *immediately and without reflexion*, besides the sign? M. Ribot chose fourteen terms, and questioned orally 103 persons of varying degrees of culture. They were classified, according to their replies, as belonging to the concrete, the visual-typographical or the audile type. A celebrated painter, on hearing the word *number*, was so "concrete" as to reply: "I

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see a great many gleaming points". Among metaphysicians the visual-typographical type predominated, and it was common among persons of wide reading. M. Ribot remarks that he was not prepared for the discovery of this type; but it is scarcely surprising that persons who wished to avoid particular associations should fix their attention on the typographical representation of the word spoken. The audile type appeared to be rare; but a learned doctor afforded a striking instance of it. It was not found among the musicians who were interrogated. After an interval of two years the same questions were put to the same persons, with very similar results, whether the previous inquiry was clearly remembered or not. The results, taken as a whole, were inconclusive.

Out of the 900 odd answers which were collected, the one which occurred most frequently was "Nothing". M. Ribot explains this by saying that in such cases the word heard is the only conscious element, and the true content of the concept is in the region of the unconscious. General ideas are *habits*, and we learn to understand a concept as we learn to walk. "What takes place whenever we have in consciousness only the general word is merely a particular case of a very common psychological fact which consists in this: the useful work is done below the level of consciousness, and in consciousness there are only results, signs and marks. . . . All memory is reducible to a latent, organised knowledge which admits of being revived; but not all memory is material for concepts. . . . The potential knowledge which underlies concepts consists of a sum of characteristics, qualities, extracts, which are less numerous, the more the concept approximates to pure symbolism: in other words, what underlies the concept is an abstract memory or a memory of abstracts."

The development of some of the most important concepts is traced with some detail. In the section on Time, for instance, M. Ribot begins by discussing the psychological present. Rhythmic vital sensations, co-ordinated with the regular series which are caused by external sensations, constitute so much of our consciousness of duration as we are sensible of. This is time under its concrete form. Thence, with the development of memory and imagination arises the power of thinking a certain extent of duration, which brings us to the concrete-abstract period, exemplified in uncivilised races, and in the popular conception of time as a vague entity which brings about occurrences. This again prepares the way for the purely abstract concept, which becomes possible when time is known as measurable. In a similar manner the growth is traced of the concepts of number, space, cause, law and species.

It will be seen that M. Ribot has made his position clear by strictly limiting his inquiry, and by explaining and illustrating, rather than elaborating, his theory. With regard to the nature of abstraction and generalisation, he says little more than that all intellectual activity is, generally speaking, reducible to one of two types: association and dissociation. The origin of abstraction must be sought in the causes which excite and maintain attention. It presupposes a dissociation, whether spontaneous or voluntary, acting upon the data of experience; and its true characteristic is the increased intensity of the elements abstracted and the consequent weakening of the other elements. Generalisation "rests on association by similarity"; but, even in its lowest forms, necessitates an act of fusion.

E. F. Stevenson.

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*Essai sur la Classification des Sciences.* Par EDMOND GOBLOT, Ancien élève de l'École normale supérieure, Professeur agrégé de philosophie au lycée de Toulouse, Docteur ès lettres. Paris: Alcan, 1898. Pp. 296.

The present work is inspired chiefly by Auguste Comte, and aims at obtaining, so far as possible, a systematic arrangement of all the Sciences. The thesis of the book is stated in the introduction. All philosophical questions belong to some positive science: if not, they are meaningless. Every distinct science rests on some fundamental notion, beyond which it cannot go. By means of the different fundamental notions, different sciences are classified. Any question as to the fundamental notion itself takes us immediately into the domain of some other science; questions as to number or extension, for example, belong to Psychology.

The body of the work is divided into two parts, entitled "The Formal Unity of Science" and "The System of the Sciences". The first part contends that there are not two methods proper to science, the inductive and deductive, but only two stages in the delevopment of various sciences. Every science—including Arithmetic and Geometry—begins by induction; but when the fundamental notions and the essential definitions have been discovered, deduction takes the place of induction, relations of ideas are shown to be not merely general, but necessary, and everything flows from definitions whose objects need not exist. But deduction does not consist merely of syllogisms, as may be seen by analysing geometrical arguments. Mathematical arguments are not merely formal, but depend always upon the matter; moreover they usually proceed, unlike the syllogism, from the particular to the general—from the sum of the angles of a triangle, for example, to the sum of the angles of any polygon.

The second part discusses the various sciences in detail. Mathematics are prior to all other sciences, because they are required for everything measurable; and within Mathematics, Arithmetic and Algebra have the first place, because they deal with pure quantity. Their fundamental idea is that of quantity, which is equivalent to the ideas of equal, greater and less, but is not definable. The idea of unity (or the unit) need not be added to that of quantity; the mathematical unit is nothing else than the number one, and is constructed, like number, with no help but quantity and augmentation (p. 74).

Geometry is the next science to Arithmetic and Algebra, because its object, extension, apart from numerable things, is alone directly measurable. After a somewhat rambling discussion of projective and metrical geometry—which, by the way, contains several mistakes, as for example, that the axiom of parallels is independent of metrical considerations (p. 91)—the author proceeds to non-Euclidean Geometry, which he declares, following Poincaré, to be equally capable of explaining phenomena, and only to be rejected as being less convenient. On this subject he makes the usual mistakes: for example, he supposes the dimensions of a non-Euclidean space to be not rectilinear (p. 112).

Mechanics, according to M. Goblot, is a new science, because it involves the new idea of velocity. It is the best example of a science which has become deductive as its elementary notions and definitions became elucidated. The laws of motion, he says, are analytical consequences of the definition of force. The view according to which they embody the definition and discovery of mass appears unknown to him, and his remarks on mass (p. 121) show no comprehension of the subject. Mechanics, like all pure sciences, is to him purely abstract, and

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wholly independent of the reality of its objects. The difference between Kinematics and Dynamics, which consists in the notion of mass, is denied by M. Goblot; the difference, to him, is that Kinematics deals with real motions only, while Dynamics takes account also of possible motions.

Cosmology, *i.e.*, Physics and Chemistry, is next discussed. The new conception here is that of bodies as actual things. The remainder of the work is occupied with Biology, Psychology and Sociology, which are regarded as forming a single group, whose fundamental idea has not yet emerged, but would appear to be that of end. This portion of the work contains some startling theories, as, *e.g.*, that logic and æsthetics are branches of Sociology; but there is little that is interesting in M. Goblot's discussions of Economics, Morals, etc.

The work appears to have few merits, except an unusually scrupulous acknowledgment of sources. On p. 43, for example, it is asserted that knowledge is power, and M. Egger is cited as having anticipated M. Goblot in the discovery of this novel and weighty aphorism.

B. RUSSELL.

*La Morale de Kant.* Par ANDRÉ CRESSON. Ouvrage couronné par l'Académie des sciences morales et politiques. Paris: Félix Alcan, 1897. Pp. viii., 203.

This work substantially reproduces an essay written on the subject: "Expound and estimate Kant's Ethics. Examine its foundations and its intrinsic value. Show in what respects it resembles Stoic and Christian Ethics, and wherein it differs from them." Accordingly ninety-seven pages are taken up with an exposition, which has the great merits of being clear, well written and well arranged, but which is not sufficiently profound to do Kant justice. M. Cresson has simplified Kant rather by attributing to him a doctrine, which is only in harmony with some of his expressions, than by laying bare the various ideas which will account for the whole. Accordingly his criticisms, though they certainly point out some errors into which Kant fell, are hardly conclusive against any one of Kant's main contentions. M. Cresson thinks that the fundamental point in Kant's Ethics, which constitutes their striking originality and at the same time utterly condemns them, is their formal character; he attributes Kant's adoption of a formal Ethics (theology apart) to his complete acceptance of psychological hedonism (it is certainly not clear that Kant does accept it) and agrees with Kant that on this basis no *universal* rule of conduct is possible (again a very doubtful assertion). M. Cresson holds that a material Ethics, if possible, must be superior to one that is formal, because, by giving a knowledge of the Good, it will also give a sure criterion of the value of the moral consciousness (p. 140); and he therefore proceeds to destroy Kant's Ethics by proving that a material Ethics is possible. M. Cresson's material ethics is what he calls 'naturalistic,' namely, it rests on the supposition that that to which our nature tends is the good: he does not see that, if this is to be a significant proposition at all, it presupposes the very 'moral consciousness' against which he is arguing. This vital defect must deprive an ethical work of any final value. It reappears in his final contrast of Kant with the naturalism of the Stoics. Kant failed, he says, because he did not ask for *a justification of duty.* Does not M. Cresson see that the question is meaningless? Can he give to the question: Why should I do my duty? any other meaning than: Why is it my duty to do my duty? In short, M. Cresson's naturalism may be

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refuted in his own words: 'A fact cannot justify a duty' (p. 193). Or does he think that the existence of his 'primitive tendency' is not a fact?

G. E. MOORE.

*Nature et Moralité.* Par CHARLES CHABOT, Ancien élève de l'École normal supérieure, Professeur agrégé de philosophie au lycée de Lyon, Docteur dès lettres. Paris: Félix Alcan, 1896. Pp. 287.

This volume of the *Bibliothèque de Philosophie Contemporaine* is an essay on the fundamental principles of morality. The title is perhaps a little misleading, since what is actually presented is not really a special discussion of the various problems involved in the relation of morality to nature, but a general examination of the foundations and character of moral experience. The work consists of three parts, dealing respectively with the form and the content of morality, and with the relation of morals to metaphysics. Finding the characteristic form of morality expressed in the idea of obligation, M. Chabot examines various attempts to interpret this idea in terms of non-moral principles. The discussion of these leads to the conclusion that the derivation of the idea from religious, metaphysical, or social considerations inevitably depends on a *petitio principii*—these giving no basis for the notion except in so far as they already imply it. Similarly, it is shown to be impossible to derive moral obligation from purely intuitive principles, whether of reason or sense.

An interesting feature of this part of M. Chabot's work is his criticism of the attempt to reconcile theoretical and practical experience by asserting the supremacy of will and the dependence of theory on practical issues. This is an evasion of the problem of philosophy which has had considerable vogue in France, and has exerted more influence there than it is likely to obtain in this country; and it is therefore interesting to find a French writer who criticises the point of view in question so admirably as M. Chabot does in this volume.

The second and much largest part of the work is occupied with the discussion of the content of morality. Its relation to the conceptions of good and of utility are considered in two chapters of vigorous and acute criticism; and these are followed by chapters on the relations of the moral end to the True and the Beautiful. The discussions contained in these chapters are particularly fresh and stimulating, and form perhaps the most important and original part of the book.

The third part of the book consists of an essay on the relations of ethics and metaphysics, in which the thesis that ethics cannot be made a mere corollary from metaphysics is maintained with the vigour and acuteness which characterise the volume as a whole.

M. Chabot's essay deserves the attention of all students.

CHARLES DOUGLAS.

*L'Année Sociologique.* Publiée sous la direction de ÉMILE DURKHEIM, Professeur de sociologie à la Faculté des lettres de l'Université de Bordeaux. Première Année (1896-1897). Paris: Félix Alcan, 1898. Pp. vii., 563.

Four hundred and forty-three out of five hundred and fifty-three pages of text are devoted to critical notices of books. This part of the work is invaluable. It affords a very complete survey of sociological literature in all departments, carried out in detail with great care and skill.

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The first hundred and ten pages are occupied by two interesting essays, one by Durkheim on "The Prohibition of Incest and its Origins," and the other by Simmel, on "The Ways in which Forms of Society conserve themselves". Durkheim traces the prohibition of incest to totem-worship. Women of a clan were *tabu* to members of that clan because the blood of the clan was *tabu*, and the blood of the clan was *tabu* because of its connexion with the totem deity. In the course of the discussion much light is thrown on the nature and conditions of exogamy. Simmel's essay is more difficult to summarise, but it is valuable and interesting.

*Ethische Studien.* Von ED. VON HARTMANN. Leipzig: H. Haacke, 1898. Pp. v., 241.

These ethical papers are intended as a supplement to the writer's systematic works: *Phänomenologie des sittlichen Bewusstseins* and *Religionsphilosophie.* Some of them elaborate points of the author's doctrine; others criticise writers who, like Nietzsche and Stirner, have propounded divergent views; others reply to those who, like Schneidewin and Stange, have found fault with Hartmann upon various sides. Of the three classes of papers, the two latter have the most attraction. Hartmann has already set forth his ethical system at great length, and the present volume makes no material addition thereto. But it was interesting to see how a writer who, in outline if not in detail, is so wildly paradoxical would treat brother paradoxers like Stirner and Nietzsche, and how he would defend his own most vulnerable system.

As might be expected, he shows Stirner and Nietzsche no mercy. Stirner was a clever disciple of Fichte, who applied the Fichtean principles to morality in a way never contemplated by their author. In an impudent, fantastic book, *Der Einzige und sein Eigentum*, he argued that if, as Fichte says, the Ego is maker both of its own consciousness and of the non-Ego, it follows that the Ego must be sovereign lord of its own creation. I alone truly exist, and all the rest of the world, my fellow-men included, are but an appearance generated by the working of my own mind. From this Stirner justifies the most absolute egoism and anarchy. Each man is a fool if he does not seek his self-aggrandisement in defiance of everything. Our most sacred conceptions, God, society, humanity, truth, are mere empty bugbears of our own fancy. Hartmann gives an abstract of Stirner's book, and has no difficulty in turning the laugh against his preposterous individualism, which actually seems to enjoy some influence in German anarchist circles at the present day.

The attack upon Nietzsche is of a similar character. Our author denounces him as representing a savage egoism which worships strength and wars upon everything that is humane and tender in man. For Hartmann, though a pessimist, is in no way a misanthropist, like his master, Schopenhauer. Out of his gloomy creed he has managed to extract maxims of social effort and self-sacrifice. To such a spirit Nietzsche's "Will to Power" is revolting. Logically interpreted it glorifies the essential vices of the tyrant, the supercilious oligarch and the social Ishmaelite. And where a tyranny is not in your power, Nietzsche seems to say, it is best to withdraw entirely from the hateful society of your species and sport with your fancies in contempt of all the practical duties of life.

In regard to that part of his book where he defends himself against critics, it would be tiresome to pass in review the various objections

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raised and Hartmann's replies to them. They are mostly questions of detail, difficult to make interesting and comprehensible save to the special student of Hartmann's philosophy. But a word may be said on the general intelligibility and consistency of his ethical system. With this system English readers are now tolerably familiar and we need not do more than recapitulate its leading points. The central idea of it is redemption, redemption of God by man. In the beginning, says Hartmann, before this phenomenal world of ours existed, was the Absolute, unconscious, quiescent, holding dormant within itself Will and Idea; or the principles of a logical unconscious Activity and unconscious logical Content. Suddenly, by a *faux pas* (the phrase is Hartmann's own), the Will awoke and pining unappeasably to do and be somewhat, dragged the reluctant Idea with it into its misery. From the struggle between them the process of the world comes into being. The Idea wishing the Will to be quiescent, the Will pining to act. As a means to still this pining the Idea, co-operating with the will, creates the world process which culminates in consciousness. Now it is consciousness which is destined finally to reduce the Will to quiescence. It is in helping to quiet the Will that man finds his moral task. The righteous man is he who recognises his unity with the suffering Unconscious and with his fellowmen and strives to render human life as little miserable as he can and to make the earth as populous and highly civilised as possible. The end of the world, Hartmann hopes, will be as follows: By the development of the human race, the greater part of the will-power in the universe will be found in human minds. Mankind by a simultaneous resolution all over the world will agree to commit suicide, in other words the positive will-power in man will turn to negative. By the act of suicide then, the negative will-power in the universe will exceed the positive and neutralise it; the world process will cease, the phenomenal world will disappear and the unconscious Absolute relieved of its pain will sink back into quiescence. This is the redemption of God by man.

It would be out of place here to enter on a discussion of this great construction, which in its boldness somewhat reminds one of a cosmogony of Aristophanes and is almost equally defenceless against unsympathetic criticism. The interesting question is: Does it furnish an intelligible solution of the problems of ethics? and this question we are compelled to answer in the negative.

The first great flaw in this ethical system is its determinism and denial of human initiative. Man is represented as a mere creature of the Unconscious, a puppet in the power of forces that lie below the conscious level. It follows then that human effort and striving are mere phrases of illusion and that exhortations like that of Hartmann, "labour vigorously in the redeeming world-process as workers in the Lord's vineyard," have no more meaning than if addressed to marionettes. This, however, is a paralogism common to all philosophies which place the supreme reality outside of consciousness, and need not be enlarged on further.

The vital objection to Hartmann's theory, so far as it is peculiar to himself, is that it makes moral conduct unintelligible if interpreted strictly; so much so that Hartmann can only escape manifest absurdity by deserting his own principles. For consider: He assumes at starting that all conduct must have a hedonistic end. This is necessary on his theory of the world. The end of the unconscious Absolute is to get rid of its pain and thus the proper aim of conscious creatures can no less be the diminution of their own misery. But if this be carried out consistently we have mere selfish individual quietism after the doctrine of Schopenhauer. To avoid this Hartmann has recourse to his principle of

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"Wesensidentität". Man must recognise the "identity of essence" which makes him one with the Unconscious. The righteous man is he who makes the ends of the unconscious his own ends. The root of evil is the pursuit of individual selfish gratification. Sympathy with the Unconscious then is the supreme virtue of man. But, we ask, how is this sympathy related to hedonism? On what utilitarian ground are we asked to sympathise with the Unconscious? Why should we concern ourselves with its unconscious sufferings? Surely an abstract identity of essence can make no difference one way or the other. To this there can be only one answer. We are asked to work for the Unconscious from the motive of disinterested pity, a quixotic pity, it may be remarked, totally inadequate to move an ordinary mind to any effort or sacrifice. But here the principle of hedonism is given up, and with it the corner stone of Hartmann's ethical system.

That Hartmann should have overlooked these obvious considerations is due, perhaps, partly to a defective sense of humour, partly to a want of insight into the human mind. One feels indeed in reading him that he is far greater as a metaphysician than as a moral philosopher. He runs up a vast metaphysical construction, he exposes with masterly clearness and precision the inconsistencies and partialities of the world-systems of his predecessors. But when he comes down to detail, to human motives and human aims, his work is superficial and mechanical. A shuffling of ethical catch-words, an antithetic argumentation of abstract systems is more in evidence than living personal experience and the sympathetic personal study of man and society.

HENRY STURT.

*Ueber den Begriff der Erfahrung bei Helmholtz.* Von VICTOR HEYFELDER. Berlin: R. Gaertner, 1897. Pp. 81.

This little monograph contains a critical presentation of the conception of experience, which served as basis for Helmholtz's view of Sense-perception in particular and of scientific knowledge in general. It falls into two parts.

The first section is occupied with a thoughtful examination of Helmholtz's psychological empiricism. The claim of the latter to such treatment is grounded upon the assertion that in the *Physiologische Optik* the empirical theory reached its extreme, and, at the same time, its most tangible expression, an assertion, however, which, in view of some of the criticisms here made, would seem scarcely justified. For we do not proceed far before it becomes manifest that Helmholtz's psychological theory rests upon certain metaphysical assumptions, which prejudge the question as to the nature of knowledge, and to which, in its character of empirical psychology, it had no need to resort. When, for example, "sensations" are said to be "symbols (and in no wise images) of relations in the external world, the meaning of which symbols it is the problem of experience to unfold," the "external world" is at the same time identified with an unknowable *Ding-an-sich*, any positive determination of which it would be a *contradictio in adjecto* to attempt to represent in perception. The author attributes this unwarrantable feature of the theory to the way in which Helmholtz's *Weltansicht* was won, from the point of view, namely, of a scientific naturalism sufficiently removed from the naïve consciousness to avoid regarding sense-qualities as arising from homogeneous archetypes in an external world, but finding no occasion to question the ordinary conception in respect to space and time relations. The inevitable consequence is rightly emphasised, that

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in the subsequent treatment the *empirical* relations of the outer sensuous world are unwittingly assumed to be those of the supposed world of things in themselves. Passing to the consideration of the way in which sensuous symbols come to possess definite meanings, Helmholtz's theory of Space-perception and of the psychological origin of the belief in an external world are discussed. As regards the former the author aims to show that Helmholtz's strong disclaimer notwithstanding, the assumed "local signs," both of sight and touch (differing significantly from the local signs of Lotze), are in reality endowed at the outset with spatial qualities. Passages are cited in support of the contention that in Helmholtz's later writings a tendency to the nativistic theory is discernible, and a general perception of space presupposed, in order to account for the localisation of particular points in the spatial field. The theory of "unconscious inference" is subjected to a searching, and, on the whole, sound criticism, although it would have gained in strength had the author drawn attention to the fact that, by the use of the epithet "unconscious," Helmholtz deprives the process of that characteristic in ordinary inference in virtue of which the empiricist claims it as empirical, and endows it with another (immediacy or directness), in virtue of which the nativist claims it as an intuition. In regard to the psychological origin of our belief in an external world, the author thinks that Helmholtz remained consistently true to the theory (derived from Schopenhauer) that it was the result of an *a priori* (or unconscious) inference from a sensuous effect to an outer cause, but that, whereas in his earlier writings this inference preceded all experience, in his later it occupied a less prominent position as following upon processes of association and reproduction. And equally against both forms of the doctrine, the objection is urged that it is an error to represent sensations as originally facts of *inner* experience, which subsequently come to be referred to outer objects, to presuppose, in other words, that the distinction between the Ego and the Non-ego is originally given. The psychological problem is not to explain how states of consciousness acquire an objective reference, but rather how a distinction between the "I-subject" and the "world-object" psychogenetically comes about. In the solution of the latter problem some of Helmholtz's suggestions are of value, particularly the stress he lays upon the importance of feeling and of voluntary activity in the development of mental life.

The second section of the work deals with the subject from the point of view of *Erkenntnistheorie*. Helmholtz's relation to Kant is considered, and the similarity turns out to be little more than verbal, Helmholtz's position being in fact what Kant designated as "transcendental realism". The explanation probably is that Helmholtz's knowledge of the Kantian system was derived mainly from Schopenhauer, whose treatment of Causality, essentially *un*-Kantian, he does little more than reproduce. One cannot help feeling that the comparison with Kant would have been much more satisfactory and thorough had less appeal been made to the tentative arguments of the "Trans-Aesthetic," and the developed conceptions of the Critical Philosophy brought to bear. The author does, however, insist that, so far as the question of the psychological origin of Space-perception and of the idea of a causal nexus is concerned, Kant would have been on the side of the empirical theory, and that the *a priori* character of Space and Time and the Categories rested for him, not upon any uniqueness in the mode of their acquisition by the individual consciousness, but upon the apodictic validity of the judgments founded upon them. Particularly in his treatment of the mathematical axioms, does Helmholtz's fundamental divergence from

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Kant become apparent. He confuses two perfectly distinct problems —the psychological, as to how we come to possess knowledge of the axioms, and the epistemological, as to the place they occupy in knowledge as such. Our author runs the antithesis between *a priori* and *a posteriori* elements of experience far too hard, but he does good service in insisting that no solution of either problem is possible so long as psychology and *Erkenntnistheorie* are inextricably blended into one, as is the case in Helmholtz's writings.

G. DAWES HICKS.

*Suggestion und Hypnose.* Eine psychologische Untersuchung. Von THEODOR LIPPS. Aus den Sitzungsberichten der philos.-philol. und der histor. Classe der k. bayer. Akad. d. Wiss. 1897. Bd. ii., Heft iii. München: Druck der Akademischen Buchdruckerei von F. Straub, 1898. Pp. 391-522.

This is a most interesting attempt to explain the phenomena of suggestion, as they occur in hypnosis and allied states, on purely psychological grounds. Suggestion is provisionally defined as the production by the revival of an idea of a psychical effect which normally does not follow the revival of this idea. Normally, the revived idea remains an idea, and does not pass into actual sensation; but in suggestion the revival may become hallucinatory. The subject is told that a cat is on the carpet when no cat is there; in consequence the cat appears to him as if it were actually present. Normally, the mere hearing and understanding of a statement does not of itself produce belief, apart from other motives; but in suggestion the mere hearing and understanding of the statement is sufficient. Similarly, a command in itself is sufficient to produce corresponding action, apart from other motives. Lipps explains all these cases of suggestion by his theory of mental reproduction. According to this theory, all reproduction essentially involves a tendency to the complete reinstatement of the process reproduced. Normally, reproduction is only partial, because of the presence of interfering conditions. If these conditions are absent, the reproduced process will be a complete reoccurrence of the original process. Thus the revival of a sense-perception will, apart from interfering conditions, become itself an actual sense-perception of the same kind, the mental representation of a belief will of itself become that belief, the mental representation of ourselves as about to perform an act, will of itself issue in the execution of that act.

The interfering conditions which normally prevent complete reproduction are of manifold kinds; but they are all due to the complexity of mental process. Any given process forms only a partial constituent in a total system. Each constituent process in the total system, in so far as it absorbs psychical energy itself, diverts it from the rest. Besides this, there is in the second place an interchange of psychical energy between different processes, in as much as they are connected by association. Thus, psychical energy, instead of being concentrated in this or that portion of a connected group, tends to become dispersed, and so weakened. This is what Dr. Lipps calls the *Abfluss Tendenz* ("flowing-off tendency"). In the third place, there is a conflict of mental processes, which must be carefully distinguished from their competition. It may be that one mental process is by its very nature exclusive of the other. I cannot represent the same thing as being at once black and white. If *A* tells me it is black, while *B* tells me it is white, there is a mental conflict.

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Now, if all these and similar interfering conditions are absent, the reproduction of a process will be free to absorb psychical energy, so as actually to become a reoccurrence of the process which it reproduces. According to Lipps, this is what takes place in hypnotic suggestion. There is in hypnosis a limitation of mental excitability, while the total amount of psychical energy is relatively undiminished. The mental processes called into being by the operator in the subject have the field to themselves. There is an absence of competition, of conflict, and of the "flowing-off tendency". Under these conditions the suggested processes can concentrate all available psychical energy within themselves. Reproductions are thus free to develop into the processes reproduced. Hence to suggest a perception is to produce a perception: and to suggest the belief that the subject will act in a given manner is to cause him to act in this manner.

The most doubtful part of Dr. Lipps's case is the explanation of hallucinatory revival. It is by no means clear that the absence of external stimulus or of equivalent conditions is not of itself sufficient to prevent the passage of mental image into sensation. On the physiological side there may be conditions operative which are equivalent to external stimulation. But apart from this, the question may be raised whether the hallucinatory images of hypnotic subjects do actually possess the vividness and distinctness of sense-perceptions. If one of them is told that there is the picture of a cat on a blank sheet of paper, he will speak and behave as if the cat were actually there. But if a pencil is placed in his hand, and he is asked to trace the outline, the result does not bear out the assumption that there is virtually an actual picture before him. His mental condition may resemble that which we often find in ourselves in dreams. We appear to see objects, although the images of these objects fall very far short of the vividness and distinctness of actual perceptions.

EDITOR (G. F. S.).

*Philosophie und Leben.* Von ROBERT SCHELLWIEN. Leipzig: Alfred Janssen; London: Williams & Norgate, 1898. Pp. 121.

The author begins by remarking, truly enough, that if philosophy is to recover its influence on mankind it must learn to converse in a human and untechnical language, and presumably intends his own work to be a contribution to this end. If so, however, he can hardly be congratulated on achieving his laudable purpose, and it is to be feared that English readers at least will not find anything either in his manner or in his matter calculated to attract their attention and to render philosophy more palatable and popular. His conclusion, for instance (p. 121), that "there is nothing more important for man to know than what the Will in him is and is capable of, to know that it is his own free power to negate the negativity of the finite, and, recreating it, to live in the centre of Being as the image of deity" bears the old familiar but unattractive stamp of German metaphysics. Nor would this impression do the author an injustice. The truth is that his title is misleading—the philosophy whose relations to life he examines is merely his own. And it consists of a monistic metaphysic of the Will, *à la* Schopenhauer, *minus* the pessimism which gave impressiveness to the metaphysics of that great writer. And as his method is extremely dogmatic and he celebrates the might of the Universal Will with the same extravagance with which his congeners have extolled the Universal Reason, he will probably carry conviction to no one but himself.

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*Ueber die Bedeutung des Weber'schen Gesetzes: Beiträge zur Psychologie des Vergleichens und Messens.* Von A. MEINONG. Hamburg and Leipzig: Leopold Voss, 1896. Pp. 164.

The present work discusses with admirable care and precision the meaning and conditions of the measurement of indivisible quantities, and, in particular, of indivisible psychical quantities. Such measurement is never measurement of the actual quantities concerned, but of a measurable substitute whose changes are correlated with those of the quantities to be measured. The nature of this substitute, as shown by Weber's Law, in the cases where substitutive measurement is possible, is fully dealt with. The author decides that Weber's Law shows stimulus and sensation to be simply proportional: Fechner's Law is rejected. The logarithmic formula, however, applies to the degree of diversity between two sensations or two stimuli. Critical notice will follow.

*Saggi sulla Teoria della Conoscenza. Saggio Primo: sui limiti e l'oggetto della conoscenza a priori.* Da COSMO GUASTELLA. Palermo, 1897. Pp. 570.

Apart from other considerations this work deserves attention as a sign of the times. It is a fresh indication that the ideas of the English experiential school are gaining ground in Italy, and it is a symptom among many of the renewed consideration now being given to the most complete representative of that school. Signor Guastella may be described as on the whole a disciple of J. S. Mill. He holds that all real knowledge is derived solely from experience and relates solely to phenomena; that matter means a permanent possibility of sensation; that causation means unconditional antecedence; that real inference is always from particulars to particulars; and he accepts the analysis given in Mill's *Logic* of the import of propositions and of the syllogism. Like Mill, though possibly without being indebted to him on this score, he also accepts the fact of which memory and the consciousness of personal identity are but different aspects, as an ultimate and inexplicable condition of experience. But in repelling the claims of the metempirical school, Signor Guastella departs from the tactics of his master. According to him the whole transcendental edifice falls to the ground with the rejection of conceptualism in favour of nominalism; and for this reason he begins with an elaborate refutation of the doctrine of abstract ideas. Even Mill is not nominalist enough for him, our great logician's account of judgments as affirming a co-existence of attributes being in the eyes of the Italian critic a revived conceptualism. General propositions are, he tells us, merely classifications; they assert that one or more concrete objects bear a greater or less resemblance to other concrete objects. In this category of resemblance our author finds the key to the distinction between necessary and contingent truth. For, unlike Mill, he concedes to the Kantians that there is such a distinction, not of degree only but of kind; and that mathematical demonstrations furnish a type of that supreme certainty which is tested by the impossibility of conceiving them to be false. But Kant's ideality of space and time no more satisfies him as an explanation of this certainty than does Mill's theory of inseparable association. Mill was on the right track when he pointed to the resemblance between our mental images of geometrical determinations and the real figures in objective space as that which enables us to discover the properties of the latter by deductive reasoning of infallible assurance; but he did not go far enough. Our author maintains that

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mathematical reasoning begins and ends with the perception of resemblances between material objects or between the mental images which are their equivalents, under the particular form of equalities and inequalities. The resemblance is a purely subjective fact produced in our minds by a comparison between the phenomena, not a mode of real existence, as is the position of a phenomenon in the order of simultaneity or succession. Hence we can reason about quantitative relations *a priori* independently of all experience except the experience of our own intellectual operations; but such reasoning gives us no information about real existences; these must be learned by observing the facts of outward sense. It must be noted that Signor Guastella denies the reality of pure space; he agrees with Aristotle in regarding extension as a property of material objects and inconceivable apart from them. Space and time are infinite as possibilities, not as actualities; beyond any object we can think of other objects; before and after any event we can think of other events; but a world without limit in space or time would be a realised infinite—a thing which cannot be thought and which therefore cannot exist. Kantians may justly complain that this inheritor of the Eleatic tradition has totally ignored the arguments of their master to the contrary. It would have been worthy of our author's ingenuity to explain why, if space and time are abstractions, they differ from all other abstractions in being necessarily conceived as single wholes, embracing all partial extensions and durations in their totality, while qualities such as colour exist entire in every concrete instance where they occur, and may be multiplied to infinity in perfect examples of their presence. In one respect, however, Signor Guastella goes thoroughly along with the Kantians. He entirely shares their hostility to the non-Euclidian geometry, and attacks its positions with not less energy than Erhardt. In the psychology of space he parts company with the English associationist school, believing like Prof. William James, whom, however, he does not name, that we see space as we see colour, without any assistance from the muscular sense. It is to be regretted that the bearings of this important issue on the philosophy of mathematics have not been considered.

I have said that Signor Guastella is a phenomenist. He is so in the most absolute sense, rejecting agnosticism of every kind, and subjecting Mr. Herbert Spencer's theory of an unknowable Power behind phenomena to some very brilliant and effective criticism. He would cordially agree with Nietzsche that the apparent world is the only world, and with Mr. F. H. Bradley that the Absolute has no assets but appearances. But neither has he any sympathy with the sceptics. If matter has no meaning apart from a sentient subject there is at any rate a fixed order among our actual and possible sensations. Truth exists, and our minds are so constituted as to recognise it. We are furnished with the data for valid inductions by memory, the trustworthiness of which is postulate number one; we work up these data by the faculty of comparison; and postulate number two demands that the resemblances and differences of our mental representations should correspond to the relations among things in themselves, *i.e.*, the groups of vivid sensations commonly called physical phenomena; and we are enabled to reason from the known to the unknown by postulate number three, which assumes the uniformity of nature. This is indeed taking the *a priori* bull by the horns. Whether the animal will admit to be so treated remains to be seen.

The author promises us two more essays dealing, as would appear, with the more concrete questions of philosophy. They will be looked



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forward to with the interest which the industry, ability and sincerity displayed in the present volume deserve; but their success would be better assured if he would pay more attention to the contemporary literature of the subject, and if he would cultivate a somewhat more compact style of exposition. A good analytical table of contents would also be helpful.

A. W. BENN.

*Metafisica, Scienza e Moralità. Studi di Filosofia Morale.* By FRANCESCO DE SARLO. Roma: 1898. Pp. 143, 77.

This work is a more or less continuous disquisition on the relation of science to philosophy or—as the author states it at the outset—on the relation of moral life to the life of thought in general. It consists of three "chapters," preceded by a preface and an introduction and followed by a conclusion, to which is subjoined an appendix consisting of an essay and an open letter. The chapters are entitled 'Naturalism and Morality,' 'Thelism and Morality,' and 'Idealism and Morality'. The contents of the Appendix are entitled 'Socialism as a Philosophic Conception,' and 'Moral Life and Social Life'—the latter being addressed to Signor Ferrero in friendly and appreciative criticism of some points in his work, *L'Europa Giovane*. Thus far and only thus far are there any schematic or thematic way-posts set up for the reader to acquire a general notion of the lines on which the writer would have him concentrate his mind. *Del resto* there is naught but I., II. and III. —as the nursery-rhyme hath it. Till the Appendix begins there is no indication at the head of the page as to chapter or contents; the sections have no titles; there is never the ghost of an index. The style is at times slipshod and at other times obscure, and the sentences at times run to twenty lines. Why, in so many philosophical works, the well-intentioned reader should be helped in inverse proportion to the abstruseness and other "*esigenze*" of the subject is a curious phenomenon. And while Europe readily acknowledges that Italy, so far from being *la terre des morts*, as was asked not so very long ago, is mentally becoming alive to the fingertips, the Italian language is nevertheless not so familiar to students of philosophy that a book written in that tongue will make itself felt outside Italy, if it call (as the late Editor of this Journal would have said) for much 'burrowing,' through obstacles that might never have been set up. It is true that the main theme is set out again and again so that he who runs may read. But the dissertations not seldom include matter of great interest and suggestiveness; and this makes the difficulty of orientation so much the more to be regretted. Especially is this so with regard to English readers conversant to some extent with Italian. For the preface (pp. xi.-xlvii.), which takes a conspectus of contemporary philosophic thought, discovers in this country a remarkable and highly original revival of "idealism". (Now and again this revival is spoken of as Anglo-American.) It is necessary to gather up the names cited quite incidentally throughout the book to find out, or guess at, whose writings the author has in view—*e.g.*, Fraser, Bradley, A. Seth, Huxley, A. J. Balfour, etc.—but he finds the conditions precedent of this revival in the advance of scientific investigation (of biology, especially) concurring with the regeneration of the æsthetic consciousness of the English, and also "the speculative concepts characterising the preceding school of English philosophy". Moreover the social environment of the country must be reckoned in—one, that is, where "the public itself *si appassiona* for moral questions"—is more preoccupied with ethical and religious life than is the case in any other

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country. Such salient features as the author finds in this movement he interweaves with some exposition of his own view of things. Inspired by the manifestation of immanence, which both German idealism and evolutionism seem to him to have in common, he seeks to "integrate" both in theism. Naturalism, or an explanation of the universe by way of phenomenal successions and co-existences, is inadequate, he finds, as postulating, without accounting for, the "valuative," standpoint (love of truth). Thelism, or philosophy of energy and will, is inadequate, as not accounting for knowing and feeling. The ethical spirit, he maintains, is the foundation of the scientific spirit and the indispensable condition of all scientific progress. Here he seems to make too little of the competitive spirit manifested by plenty of very distinguished discoverers. And with respect to *fundamenta prima*, the germs of the scientific spirit may perhaps be traced to curiosity and wonder as well as to "an intuition of values" and "belief in a reality which ought to be investigated".

However this may be, the book will repay those readers to whom it is accessible.

C. A. F. Rhys-Davids.

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## VII.—PHILOSOPHICAL PERIODICALS.

PHILOSOPHICAL REVIEW. Vol. vii., No. 3. **J. G. Schurman.** 'The Genesis of the Critical Philosophy, iii. Psychological.' ["Whether Kant reached his phenomenalism as an hypothesis to explain the antinomies, or as an inference from the ideality of space and time, is a question" of far less importance than that of the underlying psychological doctrine of "the radical distinction between sense and understanding" (1769). Analysis of the *Dissertation* (1770). The further problem (much misunderstood by commentators) is: How can intellectual conceptions or notions, independent of the impressions of experience, give us real objective knowledge? Its solution is the marriage of sense and reason in the *Critique*. Hume is the mediator; the 'dogmatic slumber' was the granting to reason of the power of knowing things in themselves.] **J. Watson.** 'The Metaphysic of Aristotle, iii. The First Principles of Finite Reality.' [(1) Necessity and Contingency. "The individual has a universal nature; but the peculiarities which differentiate one individual from another belong to the 'accidental' or 'contingent'." The former lies within, the latter lie without, the field of science. (2) Truth and Error. "Science contains either judgments which express the necessary combination or separation of attributes as involved in a thing, or conceptions of the essential or permanent nature of real things." (3) The Fundamental Characteristics of Reality. Discussion of substance.] **T. W. Taylor.** 'The Law and Responsibility.' ["The consciousness of wrongdoing is the essential element in responsibility under the law. . . . Personality is conscious being in relation to a certain environment. . . . Granted a certain position, the law neither permits the human being in that position to fall below, nor requires him to rise above, a certain standard."] Discussions. **H. V. Knox.** 'The Duke of Argyll on Purpose in Nature.' [The 'Philosophy of Belief' misses the point of Darwinism, and offers for it nothing more than a miraculous agency.] **H. M. Stanley** and **D. Irons.** 'Primary Emotions.' Reviews of Books. Summaries of Articles. Notices of New Books. Notes.

THE PSYCHOLOGICAL REVIEW. Vol. v., No. 3. **A. H. Pierce.** 'The Illusion of the Kindergarten Patterns.' [Qualitative and quantitative examination of Münsterberg's 'shifted chess-board' figure. The explanation in terms of angle-irradiation holds: change in amount and character of this changes the amount of illusion, and exclusion of it banishes the illusion. The latter (qualitative) result is, however, hardly proved. Figs. 3 and 5 show the illusion; only, since they are printed upside down as compared with the normal Fig. 2, the direction of apparent obliquity is reversed.] **H. M. Stanley.** 'On the Psychology of Religion.' [The earliest emotion in face of power is fear; the religious emotion of worship arose as a useful variation of such fear. Advantageous in the family status, the religious reaction soon became disadvantageous: its development ran counter to the laws of utility and of

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specialisation. Even as a socialising agency religion is of merely secondary importance. On the other hand, it is the source both of ethics (action side) and of myth and art (feeling side), and so becomes an end-in-itself, something not objectively but subjectively useful and valid. The same is true of it in philosophical regard, as a factor making for monism. "The evolutionary psychology of religion is, then, beset with difficulties."] **J. Jastrow.** 'A Sorting Apparatus for the Study of Reaction Times.' [Portable apparatus for tests of general (and more especially of children's) mental capacity.] **C. H. Judd.** 'An Optical Illusion.' [A pretty thread illusion (not to be briefly described), which indicates the monocular absence of the depth perception, and the prominence of binocular factors in estimation of the planes of position of monocular images.] **G. Stein.** 'Cultivated Motor Automatism: a Study of Character in its Relation to Attention.' [Planchette experiments. Two types were found: the one 'nervous, high-strung, imaginative,' autosuggestible rather than responsive to outside influence; the other phlegmatic, with little power of concentration, highly suggestible.] Discussion and Reports. **J. Jastrow.** 'The Psychology of Invention.' [Importance of anthropological and pathological work on the question.] **C. Ladd Franklin.** 'The Extended Purkinje Phenomenon (for Grey Lights).' [A somewhat *ex parte* account of Tschermak's recent paper on brightness-equations.] Psychological Literature. New Books. Notes.

Vol. v., No. 4. **G. Tosti.** 'Social Psychology and Sociology.' ["Social psychology is concerned with the genesis of that particular state of consciousness which is consequent in the individual upon the presence of and the contact with his fellows," *i.e.*, with the facts of imitation. "Sociology studies the phenomena that are consequent upon that particular state of consciousness, the social state of mind," *i.e.*, the facts of invention. Appreciation of Tarde.] **J. H. Hyslop.** 'Psychical Research and Coincidences.' [Attempt to show, by detailed study of an individual case, that material coincidences are explicable by "a critical analysis of the individual experience and the usual processes of mind". Critique of Parish.] **C. H. Judd.** 'Visual Perception of the Third Dimension.' [Visual sensations are spatial, in the sense that they are two-dimensional. The third dimension has been derived from movement sensations, and from a given function of mind (Lotze): wrongly. The common factor is, in reality, a relation. "Visual depth is conditioned by a certain relation of contradiction between the two-dimensional data of the retinal images or between the muscle-sensations which are connected with these images." A sketchy paper.] Discussion and Reports. **W. Caldwell.** 'Prof. Titchener's View of the Self.' [Criticism of Outline of Psychology, mainly from the metaphysical standpoint.] **A. MacDonald.** 'A Temporal Algometer.' **J. M. Baldwin.** 'Social Interpretations.' [Reply to Tufts.] **J. McK. Cattell.** 'Prof. Münsterberg on the Danger from Experimental Psychology.' [On the relation of psychology to education.] Psychological Literature. New Books. Notes.

Mon. Suppl. No. 5, Dec., 1897. **J. O. Quantz.** 'Problems in the Psychology of Reading.' [This is a good piece of work upon a timely subject. The questions which the author set himself to answer —the factors that make a rapid reader, the best memory type for acquisition and retention, etc.—are discussed under the headings of visual perception (experiments on forms, colours, connected and disconnected words), sensory types (eye and ear mindedness), the motor type and lip-movement, and the relation of eye to voice in reading aloud. Frequent use is made of correlation curves. An in-

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genious apparatus for short exposures, designed by Prof. Jastrow, is figured and described. The writer's conclusions are: that colours are more easily perceived than forms, disconnected words than colours, connected than disconnected words; that eye-mindedness means slightly more rapid reading than ear-mindedness; that rapid readers retain better than slow readers; that lip-movement is a hindrance to rapid, and therefore to intelligent reading; and that the physiological and psychological factors in reading, in order of importance, are visual perception, practice, power of concentration, mental alertness, and scholarly ability. Unfortunately, the excellence of the new work is to some extent offset by undiscriminating use (Cattell, Féré) or neglect (Pillsbury, Goldscheider) of related literature.] PSYCHOLOGICAL INDEX, No. 4. **L. Farrand** and **H. C. Warren**, with the co-operation of **N. Vaschide** and **B. Borchardt**. 'A Bibliography of the Literature of Psychology and Cognate Subjects for 1897.' [Issued in the third week of March: 2465 titles. There are some omissions, and numerous misprints—the 'prodigal' calculators of no. 732 are a new type!—but the whole is a notable piece of work.]

Monograph Supplement, No. 6. **J. P. Hylan.** 'The Fluctuation of Attention.' [The point of departure of this investigation was the empirical fact of "occasional change of feeling for another person, for a certain occupation or amusement," etc. Seven sets of experiments were made. (1) Letters, passing the subject at a given rate in single file, were read aloud, and records of mistakes kept. (2) Columns of figures were added; time of adding and sum given were recorded. (3) Nonsense syllables were exposed and memorised at constant intervals. (4) Addition was 'distracted' by music and by the electric current. (5) Pictures were exposed regularly, and looked at "as long as there was a natural inclination for the subject" to keep his eyes on them. (6) Test of separation of mental functions; alternation of adding and memorising syllables, under certain conditions. (7) Individual records of fluctuation of emotive attitude, ranging over periods between eight months and one month. The author's conclusions may be given in his own words. "Fatigue and recuperation proceed by the same laws for both mental and muscular functions, this being more apparent the more restricted the range of the mental function studied. Fatigue causes diminution or cessation of the primary activity, thus allowing a secondary one to come in and thus cause a fluctuation of attention." The more interesting or intensive the intruder, the less is the degree of fatigue necessary to displacement. "The more complex the object of attention, . . . or the more it chances to meet the taste of the individual, the longer will it hold the attention." "Positive and negative feeling may result from metabolic conditions and strongly influence reason;" indeed, reason is that part of feeling which stands under voluntary control. "A mental function may be developed through the invention of economic devices, and the increased power of holding mental images." Incidental results are: that a 'distraction' may serve to 'prop' the attention; that practice consists largely in increased power to hold and facility to use mental images; that there are three subjective indications of fatigue in such work as adding—vacancy of mind, inrush of extraneous ideas, confusion in the process of addition itself; that the extraneous ideas are often of the most remote kind; that "if [as the experiments make probable] the confining of the attention to one mental function causes another function to be supported by an amount of energy which, when discharging, excludes all irrelevant ideas that would otherwise be a distraction, then such a device for conditioning a function to be measured would be of

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considerable value"; etc. A distraction may reinforce attention in three possible ways: by the mutual reinforcement of disparate sensations; by acting as a reminder; by securing economically periods of rest. The author prefers the last hypothesis. A final section, on theory, is of doubtful value. Dr. Hylan believes that "for all practical purposes the attention cannot be divided". This conclusion conflicts directly with De Sanctis' view that distribution is the final stage of attentional development. Indeed, it conflicts with a good deal more. We have spoken recently on several occasions of the lack of respect for previous work shown by some of the American contributions to psychology. Dr. Hylan is a serious offender in this regard. If he dislikes footnotes, he could at least have furnished a bibliography. As it is, the reader is compelled to do the work of comparison for himself, although, in all likelihood, that work has already been done by the author.] Monograph Supplement, No. 8. **E. L. Thorndike.** 'Animal Intelligence, an Experimental Study of the Associative Processes in Animals.' [An interesting and important essay. After a criticism of previous literature, somewhat too severe in tone, the author describes his general method, as follows: "Animals were put when hungry in enclosures from which they could escape by some simple act, such as pulling at a loop of cord, pressing a lever, or stepping on a platform. Food was left outside in sight, and [the animals'] actions observed. Besides recording their general behaviour, special notice was taken of how they succeeded in doing the necessary act (in case they did succeed), and a record was kept of the time that they were in the box before performing the successful pull, or clawing, or bite. This was repeated until the animals had formed a perfect association between the sense-impression of the interior of [a given] box and the impulse leading to the successful movement." Kittens, dogs and chicks were used. The general conclusions are that there is no reason, comparison or inference, perception of similarity, or imitation shown by these animals under these conditions. Neither have they a stock of free ideas; so that animal association is not to be identified with human. "The groundwork of animal associations is not the association of ideas, but the association of idea or sense-impression with impulse." "Impulse means the consciousness accompanying a muscular innervation apart from that feeling of the act which comes from seeing oneself move, from feeling one's body in a different position, etc. It is the direct feeling of the doing." This result will hardly find acceptance; the author's rejection of true imitation in animals probably will. In view of the extended criticism and citation of Prof. C. Ll. Morgan, the reader may be directed to his notice of the essay, in *Nature*, 14th July, 1898.]

American Journal of Psychology. Vol. ix., No. 3. **F. Burk.** 'Growth of Children in Height and Weight.' [Statistics of height and weight. The average American boy and girl. Individual variation, and its factors; daily, weekly and seasonal rhythms of growths. General principles of growth: growth by rhythms, growth by parts, 'persistence' of growth (each individual 'strives to reach some size peculiar' to it), accelerated growth in large and small children, coeducation of the sexes, biological considerations (Minot's view of senescence *vs.* growth, and of the four factors in growing). Psychological aspects of the problem: we must know the "modification of the growing mind by sex, race, nutrition, disease, and by rapid and slow rates of metabolism". Bibliography (109 titles).—A very elaborate and useful study: impossible of summary,

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since its object is to set forth the salient facts of the work already done, and to serve as a 'pathfinder' to sources of information, rather than to draw general conclusions. It might have been well to reduce inches to cm., and lb. to kg. in all the tables.] **E. B. Titchener.** 'The English of the Psychophysical Measurement-methods.' [Suggestions of English symbols for the methods. Sample of note-book blank for method work.] **L. Darlington** and **E. B. Talbot.** 'Minor Studies from the Psychological Laboratory of Cornell University, xvi. A Study of Certain Methods of Distracting the Attention, iii. Distraction by Musical Sounds; the Effect of Pitch upon Attention.' [Musical phrases do not distract, but reinforce the attention. They are slightly dynamogenic; but no definite relation can be made out between pitch, on the one hand, and either distracting power or dynamogenic effect, on the other. Double movements are somewhat better, in the comparison of lifted weights, than either upward or downward movements.] **E. B. Titchener.** 'Postscript.' [Reviews the three Studies dealing with distraction of attention. Choice of distractor; relation of partial distraction to total experiment.] **A. Kirschmann.** 'The Representation of Tints and Shades of Colour by Means of Rotating Discs.' [Mathematical deduction of size of sectors for continuous change in arithmetical progression. Modification of formulæ for logarithmic increase and decrease.] **G. S. Hall.** 'Some Aspects of the Early Sense of Self.' [Account based on questionnaire returns. (1) Earliest parts of the physical self to attract attention: hands and fingers, feet, knees, etc. (2) Penetration of the self beneath the bodily surface: bones, stomach, etc. (3) Dress and adornment as factors in the self. (4) The *rôle* of the mirror, and (5) of the child's name. (6) The child's idea of the soul, as shaped like the body, a part of the body, an animal, a flower, etc., etc. (Here occurs an interesting excursus on the method of teaching psychology—one should begin with the soul-theories of savages and children, instead of with the theoretical or experimental discussion of sensation—and on the mental imagery employed for psychic processes by the teacher. Pedagogically, a soulless or epiphenomenal psychology is bad.) (7) 'Philosophic' stirrings in the child's life: questions of the validity of sense impressions, of one's own reality, of one's self-identity (*cf.* the dramatic passion in children); self-bifurcation; protension towards maturity. (8) Influence of foreign selves. The social sense. Conclusion: without neglecting the oracles of psychological individualism, which find the self in intellect or will, we must realise that "soul is vastly larger than consciousness, and the highest powers are those that spring from roots which start deepest down in the scale of life. . . . Child study, because of these limitations of introspection, and even of consciousness, and because the real deeper self can confessedly never be thus known, turns to more purely objective methods."] Psychological Literature. [Titchener on Lipps, and Wundt's Optical Illusions.] Notes and News.

Revue Philosophique. July, 1898. **E. de Roberty.** 'L'Idée d'Évolution et l'hypothèse du psychisme social.' [Too long to summarise.] **G. Compayré.** 'L'Enseignement intégral d'après un livre récent' (par Alexis Bertrand. Paris. 1898). [By 'l'enseignement intégral' is meant the teaching of everything to every one; an education universal both in respect of the pupils who receive it and the knowledge which it imparts. Article discusses the practical and theoretical objections to the scheme.] **Récéjac.** 'L'Inconcevable.' [A study of mysticism as a state of consciousness. The 'Absolute' is too much within us for any 'idea' of it to be possible. We *experience* it, however, and this experi-

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ence may be called 'la conscience de l'irrationnel dans les choses'. Instances of such experiences are (1) sensation, (2) the moral life.] Revue générale. Analyses et comptes rendus. Revue (MIND). Correspondance.

August, 1898. **A. Binet.** 'La mesure en psychologie individuelle.' [Describes a series of carefully planned devices for measuring individual intelligence, *e.g.*, powers of memory, susceptibility to suggestion, quickness in grasping sense of passage, etc.] **B. Bourdon.** 'La perception monoculaire de la profondeur.' [Describes experiments made (1) without, (2) with, movements of the head. Inquiry tends to show that latter play very important part in monocular perception of depth.] **G. Gaillard.** 'La recherche du particulier.' [Science has too long remained content with so-called 'universal laws'. By means of these alone no individual fact can be known. 'Chaque phénomène par sa spécialté, sans aller jusqu'à dire qu'il ait une théorie propre, demande tout au moins, pour que sa particularité soit connue et sa disparité résolue, une explication spéciale.'] Notes et discussions. Revue générale. Revue critique. Analyses et comptes rendus.

September, 1898. **L. Dugas.** 'La Dissolution de la Foi.' [Illustrated by passages from *Robert Elsmere*.] **G. Dubreuque.** 'L'Intuition Motrice.' [A psychological inquiry into the *quality* of the intuition of space.] **C. Bos.** 'La Partie Sociale de la Croyance.' [In an assembly of believing persons the belief of each is reinforced by the belief of all. Belief is directly *communicated* without the intervention of language. Language circulates belief, but it is but an inadequate vehicle; since, while belief is individual and unstaple, language is collective and fixed. Uniformity of belief is the cement which ensures the stability of society. Perfectly realised, it would lead to communism. As a principle of synthesis all belief is moral, for 'est moral tout ce qui est source de solidarité'.] Observations et Documents. Analyses et comptes rendus. Revue des périodiques étrangers (the *Psychological Review*).

REVUE DE MÉTAPHYSIQUE ET DE MORALE. 6e Année, No. 3. Mai, 1898. **E. Durkheim.** 'Représentations individuelles, et Représentations collectives.' [A psychologico-metaphysical study, directed against the views of life and mind maintained by Huxley and Maudsley, according to whom mind is a *merely* biological or organic, *i.e.*, material, phenomenon, whose reality is altogether the outcome of its physical conditions. This view of mind has led to a corresponding view of the relation of the individual to society. The sociology thus arrived at is, however, as unsatisfactory as the psychology which formed its basis: and M. Durkheim endeavours to replace the materialistic view of individual and social mind taken by Huxley and Maudsley, with a spiritualistic view which seems to him more philosophical. The terms in which he expresses his conclusions are, he admits, highly metaphysical; yet they are the true equivalent of the natural facts.] **Ch. Dunan.** 'La nature des Corps.' [The molecules of bodies are real in the absolute sense: the bodies themselves are but aggregates, pure *êtres de raison*, and not absolutely real. But these aggregates are what we call 'brute matter'. Thus it has been 'shown twice over that brute matter is not self-subsistent, that its reality is phenomenal or apparent merely; it is nothing but a view-point from which the mind contemplates the true realities—living beings'.] **G. Tarde.** 'Les lois Sociales' (*suite et fin*). [The third of a series of articles, of which the two first appeared in the January and March numbers of this *Revue*, is occupied with the conception of natural 'Adapta-

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tion'. This 'expresses the deepest truth which science can discern in the universe'. The writer finds in 'repetition,' and 'opposition' (the themes of the two former articles successively), and lastly 'adaptation,' the highest categories of being or process—the separate lines of direction by which thought must guide itself in its effort to obtain a comprehensive view of the world, of man and of society.] Études critiques, etc.

6 Année, No. 4. Juillet, 1898. **L. Brunschvicg.** 'De quelques préjugés contre la philosophie.' [The tendency of modern times is to place the philosophy of Feeling and Will on the same level as, or on a higher level than, that of Reason. This implies a confusion fatal to spiritual life and to the moral unity of society. Spinoza writes: "The modes of thought, as of love, desire, or any other affection of the soul, cannot be given except on condition that there is given in the same individual the idea of the thing loved, desired, etc.; but the idea can be given without any other mode of thought being given". Spinoza made this an axiom; and it may at least be maintained, though the examples of Kant, Schopenhauer and others show that to regard it as axiomatic would be to presume too far. The writer attempts to maintain it in the interests of true philosophy, which gives their due places to the Feelings and the Will, while avoiding any conflict between these faculties and Reason in the human soul. One must philosophise with the whole soul, not with a part of it. Feeling and Will must, however, be in the service of Thought.] **L. Couturat.** 'Sur les rapports du nombre et de la grandeur.' [This paper deals with a peculiar theory of knowledge, implied in an article of Mr. Bertrand Russell (MIND, vi., No. 23, new series), 'On the Relations of Number and Quantity'. "An article so full of ideas," writes M. Couturat, "that it is very difficult to give a *résumé* of it without weakening its force."] **E. Chartier.** 'Commentaire aux fragments de Jules Lagneau.' [Publishes, under the name of Jules Lagneau, certain MSS. of the latter, and follows them up with a commentary. "Perception supposes metaphysical affirmations;" this assertion is illustrated by reference to particular modes of perception—those of Touch and Hearing. Next comes a paragraph on the theme "The Lower is explained by the Higher". Lagneau had an absolute faith in the value of Reason and of Reason only. (Further papers are to follow.)] Études critiques, etc.

REVUE NÉO-SCOLASTIQUE. No. 17. **M. Mercier** ('La Philosophie de Herbert Spencer') is of opinion that Mr. Herbert Spencer is rather a collector of ideas than the creator of a philosophical system. The Metaphysic and the Rational Psychology of Mr. Spencer are little more than a fusion of the many systems of philosophy which are ultimately traceable to the speculations of Descartes. The consequence of this is that Mr. Spencer's teaching lacks organic unity. **M. Descamps** ('La Science de l'ordre') regrets that no science of order exists. There is an idea of order, there are various applications of this idea; but there is no science of order. It may be said that order is discussed in ontology. This is true, but with reservations. The order discussed in ontology is order as found in the beautiful, or order as found in nature. Discussions like these are far from exhausting the content of order. A science of order as such has no existence. Why is this? Would such a science be wanting in precision? The supposition may not be tolerated. Would it be wanting in importance? Its importance might easily be established. But still the science has no existence. It is to call attention to this defect and to suggest the means of removing it that M. Descamps has written his

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paper. **M. de Lantsheere** ('L'Évolution moderne du droit naturel') points out that the "natural rights" theory, which was regarded in the eighteenth century as an absolute and definitive system, has now made way for sociology which views all institutions as essentially relative, and contents itself with seeking out the laws which bring about their changes. Between these two contradictory formulæ stands the philosophy of Hegel engaged in its hopeless attempt to reconcile the relative with the absolute, by ascribing to the absolute the power to develop itself by incessant modifications. **M. Thiéry** ('Was soll Wundt für uns sein') endeavours to show that Wundt, if not an ally of Scholasticism, is, in respect to Psychology, at least, an auxiliary of that system. Wundt may, on ideological grounds, decline to accept the scholastic theory of the substantial union of body and soul; but he none the less admits that that theory is, more than any other, borne out by the facts of science.

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Bd. xvii., Heft 3, 4. **A. Meinong.** 'Ueber Raddrehung, Rollung und Aberration. Beiträge zur Theorie der Augenbewegungen.' [Criticism of usage; analysis of problem. There are three 'rotation' questions. 1. Does the eye, at the conclusion of a movement, assume such a position that the parts of the retina whose images in the original position were horizontal, vertical, oblique, function in the final position for the perception of the horizontal, vertical, oblique? This is answered in terms of *aberration*, the deviation of the vertical retinal meridian from the absolute vertical (Donders: Wundt takes the horizontal). 2. Does the position of the retinal horizon remain unchanged in relation to the plane of regard? Or (if the position of departure is the primary position): Does the retinal horizon remain continuously in the field of regard—the latter, of course, rising and falling with the movement of regard? This is answered in terms of wheel-torsion. *Torsion* is the deviation of the retinal horizon from the field of regard correlated with the given position of the eyes (Helmholtz). 3. Is the final position of the eye such that it could be carried to this position by 'simple' rotation round an axis perpendicular to the line of regard in its first and second positions? This is answered in terms of *twist*. Twist is the rotation-component of an eye-movement, where rotation means rotation round the line of vision as axis (Hering).] **S. de Sanctis.** 'Studien über die Aufmerksamkeit.' [Summary of the author's studies on attention, carried out for the most part on pathological subjects. It is asserted that the distinction between spontaneous and voluntary attention is misleading: every attention has an 'exponent of voluntariness,' which has to be determined. Attention should be studied by two methods: observation (for 'natural' attention) and experiment (for 'conative' attention). Capacity of distribution of attention marks a higher evolutionary level than does capacity of concentration.] **R. Weinmann.** 'Die erkenntnisstheoretische Stellung des Psychologen: zugleich ein Beitrag zur Begründung der realistischen Denkweise als einzig möglicher.' [Plea for a dualistic realism. "It is true that [epistemologically] there is no primary datum beyond the world of our consciousness; but this can never be understood save as a (more or less adequate) reflexion of an objective external world, existing independently of us (and in so far to be termed transcendent)." A review of the subject-matter of psychology shows that this theory of knowledge is implicit in all psychological thinking. Critique of Schuppe, Avenarius, Cornelius.] **F. Schumann.** 'Ein Contactapparat zur Auslösung elektrischer Signale in variirbaren Intervallen.' [Description of apparatus; sample series of experiments. Reply to Meumann.] Literaturbericht.

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Bd. xvii., Heft 5. **A. Pfänder.** 'Das Bewusstsein des Wollens.' [Seeks to show, by a detailed and acute criticism of Münsterberg and James, that a will-feeling, in Lipps' sense, must take rank as a specific content of consciousness. Closes with brief references (which had better have been omitted) to some other psychologists.] **W. von Tschisch.** 'Warum sind Raum und Zeitanschauungen beständig und unentbehrlich?' [The space perception is constant and indispensable, because sensations of movement and of equilibrium have the same characteristics. Thought and idea always involve motor elements (Stricker); movement sensations cannot be inhibited by hypnotic suggestion, without total lapse of consciousness. The time perception gets its attributes from the same sensations of movement, and from obscurely conscious physiological processes (respiration, cardiac activity, etc.). The sensations of movement do not wholly lapse in the deepest sleep; many people, *e.g.*, cannot sleep upon the back. The importance of the periodic physiological processes is vouched for by experiments on the appreciation of time by somnambules and on waking at a given time by autosuggestion, and by the fact that periods of time are best estimated in the absence of all ideas and thoughts. It is to be noted that the bases of the characteristic attributes both of space and of time are prior to the development of the five senses.] Besprechung. [Heymans on Lipps' *Raumaesthetik*, etc.] **H. Rickert.** 'Berichtigung.' **P. Barth.** 'Entgegnung.'

Bd. xvii., Heft 6. **M. Meyer.** 'Ueber Tonverschmelzung und die Theorie der Consonanz.' **C. Stumpf.** 'Die Unmusikalischen und die Tonverschmelzung.' [Partly by way of general criticism, partly as deductions from new experiments (reaction to clangs, effect of shortening the clang-duration, of varying the relative intensity of the components, of distributing the two tones of the clang to the two ears), Dr. Meyer makes a number of rash statements, which Prof. Stumpf promptly 'sits on'. Nothing new is offered, though the discussion may do good as a lesson in caution.] Besprechung. [Stern on Wahle's *Die Philosophie und ihr Ende*.] Literaturbericht.

Philosophische Studien. Bd. xiv., Heft 2. **G. F. Lipps.** 'Untersuchungen über die Grundlagen der Mathematik.' [Continued from Bd. xi.; on the development of the concept of universal number from the relation of ground to consequence. There are four fundamental laws of thought: the principle of identity, rooted in the act of apperception; those of contradiction and of excluded middle, based on that univocal nature of thought which necessarily follows from its serial form; and that of ground and consequence, "the objective principle of logical arrangement, whose primal significance is manifested in every objective relation of dependency". The importance of the fourth principle is overlooked in most theories of knowledge, since their interest is empirical, and ground and consequence are swamped in cause and effect. From this principle the author deduces the concept of universal number, concluding that "not the concept of quantity, but that of the iterable relation of thought, is the basis of universal number and of the mathematical investigations that depend upon it".] **R. Richter.** 'Der Willensbegriff in der Lehre Spinoza's, II.' [*Will in man.* (1) In knowledge. The identification of will and understanding implies a progressive intellectualisation; but the view ceases to appear extreme or paradoxical when we take into account its limitation to judgment, and the results for knowledge itself that follow from the resolution of will into knowledge. (2) Will as impulse, desire, feeling and action. The equation of the impulse to self-preservation with the essence of things, in its metaphysical

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and psychological bearings. Ideas as sole conscious material, whose states of tension produce impulse and desire. The relation of will as judgment to will as desire. The antithesis of idea and will in the two first parts of the Ethics. Dependence of feeling on idea; interdependence of feeling and will. The concepts of freedom, action, and power. (3) The ethical will. *Development of the doctrine of will.* Comparison of the Ethics with the *Tract. brev.* Agreement in principles, and in the doctrine of will in God. Differences in interpretation of empirical realities, especially in human psychology.]

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. Bd. iii., Heft 2. February, 1898. **R. Falckenberg.** 'Aus Hermann Lotzes Briefen an Theodor und Clara Fechner.' **Otto Stock.** 'Psychologische und erkenntnistheoretische Begründung der Ethik.' [It is strange that while the theoretic philosophy of the present owes so much to Kant, the ethical philosophy withdraws itself completely from his influence; especially as Kant himself made Ethics the coping-stone of his speculation. The cause of this is referred to the barren formalism of Kantian Ethics. Here follows an examination of the latter from this standpoint.] **Ludwig Busse.** 'Jahresbericht ueber die Erscheinungen der anglo-amerikanische Litteratur der Jahre 1893-94.' [Here are noticed Armstrong's translation of Falckenberg's *History of Modern Philosophy;* Fullerton's *Spinoza's Ethics* in English; Wallace's *Translation of Hegel's Logic;* also his *Prolegomena to the Study of Hegel's Philosophy;* R. Flint's *Historical Philosophy in France, and French Belgium and Switzerland;* George T. Ladd's *Elements of Physiological Psychology;* Ormond's *Basal Concepts in Philosophy.* Critical remarks are included in each notice.] **Karl Vorländer.** 'Sören Kierkegaard und sein "Angriff auf die Christenheit".' [Kierkegaard is a theologian who accepts the whole content of the Bible as true, being orthodox in the sense that he interprets the sacred writings not literally and verbally, but in the light of his subjective religious needs, subordinating dogma to Ethics.] **A. Döring.** 'Ein Wort pro domo in Bezug auf H. Diels "Parmenides Lehrgedicht".' [The writer defends himself against a criticism by Diels of a paper of his in *Zeitschrift* 104.] **Siegfried Mekler.** 'L. Campbell ueber die Stelle des *Sophistes, Politicus,* and *Philebus,* etc.' [Continues the tribute of admiration which has recently been so freely paid by so many German scholars to Prof. Campbell's Platonic works. These articles will have served one very good purpose if they turn the attention of Prof. Campbell's own countrymen to his Introduction to the *Politicus* and *Sophistes,* and to the Essays appended to the edition of the *Republic,* published by him and Mr. Jowett a few years ago. The *mere* 'scholarship' of English Platonism has too long prevented us from appreciating the really great work done by Prof. Campbell in connexion with Plato. Lutoslawski and the Germans will soon, it is to be hoped, have changed this attitude.] **Dr. Fr. Nagel.** 'Ueber den Begriff der Ursache bei Spinoza und Schopenhauers Kritik desselben.'] Recensionen, etc.

May, 1898. Bd. cxii., Heft 1. **Johannes Volkelt.** 'Die tragische Entladung der Affekte.' [An article suggested by Von Berger's introduction to Theodor Gomperz' recent translation of the Poetics of Aristotle, on the so-called katharsis-literature, and the meaning of Aristotle's famous definition of *τραγῳδία* as *μίμησις πράξεως σπουδαίας καὶ τελείας . . . δι' ἐλέου καὶ φόβου περαίνουσα τὴν τῶν τοιούτων παθημάτων κάθαρσιν.*] **Siegfried Mekler.** 'L. Campbell über die Stelle des *Parmenides,* etc.' [Follows up the line of study which has so recently come into favour with

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Platonists in Germany.] **W. Lutoslawski.** 'Stylometrisches.' [The author of *The Origin and Growth of Plato's Logic* defends his stylometric mode of determining the chronology of Plato's Dialogues against the criticism of Zeller.] **Dr. Walter Schmidt** (Breslau). 'Fr. Bacos Theorie der Induktion.' [Examines the Baconian views (A) of the object of knowledge generally; (B) of the knowing subject; (C) of the relation between the object and the subject; and on this examination bases a criticism of Bacon's philosophical method.] **Dr. Fritz Sommerlad** (Giessen). 'Aus dem Leben Philipp Mainländers.' Recensionen, etc.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Jahrg. xxii., Heft 3. **F. Carstanjen.** 'Der Empiriokritizismus. (*Artikel III.*)' [Discusses the 'expression-values' Thing, Thought, Perception and Idea, and explains the theoretical behaviour of the mind by reference to the conception of the vital series. As against Wundt, it is maintained that the philosophy of Avenarius is not a naïve realism.] **E. Reich.** 'Schubert-Soldern über die soziale Frage.' [Discusses Schubert-Soldern's work entitled *Das menschliche Glück und die soziale Frage.*]

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. Bd. iv., Heft 3. **Nicolas von Grot.** 'Die Begriffe der Seele und der psychischen Energie in der Psychologie.' [It is maintained that there is an interchange of energy between material process and conscious process. The hypothesis is propounded that the most immediate correlate of conscious process is not nervous matter, but ether.] **E. Koch.** 'Richard Avenarius' Kritik der reinen Erfahrung (*Schluss*).' **Naville.** 'Le principe général de la classification des sciences.' [Adopts as principle of division the three questions: What is possible? What is real? and What is good?] JAHRESBERICHT über die Erscheinungen auf dem Gebiete der systematischen Philosophie: **F. Jodl.** 'Jahresbericht über die Erscheinungen der Ethik aus dem Jahre 1895.'

PHILOSOPHISCHES JAHRBUCH. Band xi., Heft 1. **C. Gutberlet.** 'Die Krisis in der Psychologie.' [Psychology is ever occupying more ground, and threatens to absorb the whole of Philosophy, Logic, Metaphysic, Ethic and Law. Most modern Psychologists take a purely experimental standpoint, as is proved by quotations. But Empiricism cannot be a foundation for any science; even more than old Nominalism, it renders all science impossible.] **Jos. Geyser.** 'Der Begriff der Körpermasse.' [*Conclusion.* Admitting ultimate atoms, we must admit that they are extended; inextended atoms are an absurdity. They must also have density, as a principle of unity and resistance to outward impacts, and the writer considers that elasticity is also an essential attribute of these atoms.] **Fr. X. Pfeifer.** 'Ueber den Begriff der Auslösung.' [Conclusion. The author continues to follow the process of 'Auslösung' (or the setting free of one activity by another) in the problem of sensitive and intellectual cognition. The outward stimulus sets free the sensitive act; this in its turn occasions internal feeling, and in presence of the latter, the intellect acts and produces the idea. In neither case ought 'Auslösung' to be confounded with 'cause'.] **E. Dentler.** 'Der Νοῦς nach Anaxagoras.' [In this first article the writer endeavours to set forth Anaxagoras' idea of the νοῦς, as principle of the universe, its immateriality, aseity, simplicity and omniscience; correcting and explaining the fragments which remain to us, by means of passages of Aristotle referring to Anaxagoras or his doctrine.] **J. Bach.** 'Zur Ges-

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chichte der Schätzung der lebenden Kräfte'. [Continuation. Descartes' idea of matter was mere extension, this was combated by Leibniz, who rightly added to that idea mobility and resistance. In matter tending to move but resisted by other matter, we must also admit *vis mortua*; if it actually moves, it has *vis viva*, which increases in proportion to the square of its velocity. From the conservation of energy we deduce the constancy of the laws of nature.]

RIVISTA ITALIANA DI FILOSOFIA. January-February, **L. Ferri.** 'L'Evoluzione Filosofica.' [In the general history of human culture, philosophy has always been preceded by dogmatic Theology. The next step has been to determine, define and systematise the body of ascertained truth underlying the beliefs of Theology. When Theology is rationalised and freed from external authority, it tends to become Philosophy. Philosophy is defined in a Hegelian sense as the unity and totality of all knowledge, and contains within itself an analytic and synthetic process, or as the writer later explains, an external and internal aspect. The *external* consists mainly in the relation of Philosophy to the various special sciences, in which connection it is shown how the various sciences split off from general Philosophy, and conversely how science has repaid its debt to Philosophy by providing new material in many directions. The *internal* aspect of the Evolution of Philosophy consists in an ever-growing profundity in the examination of the fundamental Ideas of Thought, joined with a more precise determination both of the powers and limits of thought, and this idea is traced out in an outline of various tendencies of modern thought.] **A. Codara.** 'Seneca Filosofo e S. Paolo P. Covotti Il "Cósmos Noetós" di Plotino nella sua Posizione Storica.' [Both of which are continuations of discussions already noticed.] **A. Gnesotto.** 'Interesse e Disinteresse nei Sentimenti ed in particolare nei Sentimenti Morali.' [This is a criticism of views recently published by Prof. Cantoni. The writer maintains, by a review of the various classes of feelings, that feeling as such cannot inspire a truly disinterested action. Morality can only spring from the "divine idea of duty," and the fact that the moral law is "disinterested" tends to show the existence of disinterested feelings.] **G. B. Gerini.** 'Di una Definizione dell' Allievo criticata dal Professore Morando.' Bollettino. Rivista Straniere. Recenti Pubblicazioni.

## VIII.—NOTE.

### AWARD OF WELBY PRIZE.

The Welby Prize of £50, offered for the best essay on 'The causes of the present obscurity and confusion in psychological and philosophical terminology, and the directions in which we may hope for efficient practical remedy,' has been awarded to Dr. Ferdinand Tönnies, of Hamburg. A translation of the successful essay will appear in MIND shortly.

### ERRATUM. (JULY, 1898.)

P. 438, l. 1, for "Weismann" read "Wasmann".

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